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FROM

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THE MISCELLANEOUS WRITINGS

OF

JOHN FISKE

WITH MANY PORTRAITS OF ILLUSTRIOUS PHILOSOPHERS, SCIENTISTS, AND OTHER MEN OF NOTE

IN TWELVE VOLUMES

VOLUME I

Herbert Spencer

OUTLINES OF COSMIC PHILOSOPHY

BASED ON THE DOCTRINE OF EVOLUTION, WITH CRITICISMS ON THE POSITIVE PHILOSOPHY

BY

JOHN FISKE

WITH AN INTRODUCTION BY JOSIAH ROYCE

L'univers, pour qui saurait l'embrasser d'un seul point de vue, ne serait, s'il est permis de le dire, qu'un fait unique et une grande vérité. — D'ALEMBERT

Καὶ τὸ ὅλον τοῦτο διὰ ταῦτα Κόσμον καλοῦσιν, οὐκ ἀκοσμίαν. — PLATO

IN FOUR VOLUMES. — VOLUME I.

BOSTON AND NEW YORK
HOUGHTON, MIFFLIN AND COMPANY
The Riverside Press, Cambridge

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Stewart Institute

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TO

GEORGE LITCH ROBERTS

IN REMEMBRANCE OF

THE GOLDEN DAYS WHEN, WITH GENEROUS AIMS IN COMMON

WE STUDIED PHILOSOPHY TOGETHER

AND IN CONSECRATION OF THE LIFELONG FRIENDSHIP

WHICH HAS BEEN

AN UNFAILING SOURCE OF JOY AND STRENGTH

TO US BOTH,

I Dedicate this Book

PREFACE

THE present work is based upon lectures given at Harvard University in the autumn of 1869, and spring of 1871, and afterwards repeated, wholly or in part, in Boston, New York, Milwaukee, and London.[1]

At the outset these lectures were designed to include only a criticism of the Positive Philosophy, and I had no intention of publishing them in anything like the shape in which they were originally written. It was only when — at the suggestion of Dr. E. L. Youmans, and through the kindness of Mr. Marble — the lectures were reported in the New York "World," and seemed to meet the wants of a large number of readers, that I decided upon publishing them, and upon so enlarging the course as to make it include a somewhat complete outline sketch of the new philosophy based on the Doctrine of Evolution. In coming to this decision, I was at first but carrying out a project, formed several years earlier, of writing a series of essays

[1] [See Introduction, § 3.]

illustrative of Mr. Spencer's philosophy.[1] But the work has grown on my hands, and in its present shape is something more than it was originally intended to be. For while it does not, as a whole, lay any claim to the character of an original work, it has nevertheless come to contain so much new matter, both critical and constructive, that it can no longer be regarded as a mere reproduction of Mr. Spencer's thoughts. The new constructive matter begins with the eighteenth chapter of Part II., which (together with its predecessor) was written in 1866, and which leads to conclusions concerning the relations of a social community to its environment, such as will doubtless be much more thoroughly and satisfactorily presented by Mr. Spencer in his forthcoming work on Sociology. The following chapters on the Genesis of Man, along with considerable expository and critical matter, contain a theory as to the part taken by the prolongation of human infancy in originating social evolution, which is entirely new in all its features. With the exception of numerous minor suggestions scattered here and there throughout the work, these are the only parts of the con-

[1] [There is in existence a letter to Mr. Spencer in which Fiske states this plan of a volume of essays on the philosophy of the former.]

structive matter which I can claim as my own; though it may be interesting to observe that the chapter on the Evolution of Mind was mostly written, and the theory contained therein entirely worked out, before the publication of Part V. of the second edition of Mr. Spencer's "Principles of Psychology."

The new critical matter is mostly to be found in the chapters relating to religion, and in the discussion of the various points of antagonism between the philosophy here expounded and the Positive Philosophy. Though the real work of demolishing the undue pretensions of Positivism had already been well accomplished by Mr. Spencer,[1] most of whose arguments are here reproduced, it seemed to me that much might still be done toward clearing up the dire confusion with which in the popular mind this subject is surrounded — and this I realized the more keenly as it was some time before I had succeeded in getting clear of the confusion myself. Accordingly on every proper occasion the opinions characteristic of the Positive Philo-

[1] [In Spencer's essay on the "Genesis of Science" and in his "Reasons for Dissenting from the Philosophy of M. Comte." Both papers appear in the second volume of the definitive edition of Spencer's *Essays, Scientific, Political and Speculative.*]

sophy are cited and criticised; and on every occasion they are proved to be utterly irreconcilable with the opinions characteristic of Mr. Spencer's philosophy and adopted in this work. The extravagant claim of Positivism to stand for the whole of attainable scientific philosophy is, I trust, finally disposed of when it is shown that a system of philosophy has been constructed, out of purely scientific materials and by the employment of scientific methods, which opposes a direct negative to every one of the theorems of which Positivism is made up.

The phrase "Cosmic Philosophy,"[1] by which I have proposed to designate this system, has not found favour with Mr. Spencer, who urges the objection that all philosophies whatever may, in a certain sense, be termed "Cosmic," inasmuch as all philosophies have had for their subject matter the explanation of the universe or Cosmos. In this objection there would no doubt be much weight if any alternative term could be proposed which should be ideally perfect. As it is, I cannot but think that the alternative term suggested by Mr. Spencer is open to a parallel objection of at least equal weight.

[1] This term was first suggested to me by Mr. Manton Marble, some four years ago, though at that time neither he nor I could have appreciated it at its full value.

To the phrase "Synthetic Philosophy," as a distinctive epithet, it is an obvious objection that the systems of Aquinas and Hegel, and other systems built up by the aid of metaphysical methods, might claim to be entitled "Synthetic" as well as the system of Mr. Spencer. So far as this goes, therefore, there would seem to be but little room for choice between the two terms. But when we look more carefully into the matter, the case is seen to be otherwise. For not only does the term "Cosmic," when regard is had to the implications of its primitive meaning, convey all that is conveyed by the term "Synthetic," but it further hits the precise point by which Mr. Spencer's philosophy is fundamentally distinguished alike from Positivism and from all ontological systems. For the term "Cosmos" *connotes* the orderly succession of phenomena quite as forcibly as it *denotes* the totality of phenomena; and with anything absolute or ontological, with anything save the "Mundus" or orderly world of phenomena, it has nothing whatever to do. So that, strictly speaking, no theological system of philosophy can be called "Cosmic" while admitting miracle, special creation, or any other denial of the persistence of force, into its scheme of things; and no ontological system can be

called "Cosmic" while professing to deal with existence not included within the phenomenal world. The term, therefore, forcibly distinguishes Mr. Spencer's philosophy from systems which have contained ontological or theological assumptions. And on the other hand, as is shown below, in the ninth and tenth chapters of Part I., it distinguishes it from Positivism; since the latter philosophy consists of an Organon of scientific methods ancillary to the construction of a system of Sociology, and has always implicitly denied the practical possibility of such a unified doctrine of the Cosmos as Mr. Spencer has succeeded in making. In short, Mr. Spencer's philosophy is not merely a Synthesis, but it is a "Cosmic Synthesis;" that is, it is a system which, without making appeal to data that are ontological or to agencies that are extra-cosmic, brings all known truths concerning the coexistence and succession of phenomena into relation with one another as the corollaries of a single primordial truth, which is alleged of the omnipresent Existence (ignored by Positivism), whereof the phenomenal world is the multiform manifestation. To no other system yet devised can this definition be strictly applied; and of no other system can we strictly say that it is "Cosmic."

Along with these specific advantages, as characterizing Mr. Spencer's system of philosophy, the term "Cosmic" and its congeners possess sundry general advantages, as characterizing that entire method or habit of philosophizing of which Mr. Spencer's system is in our day the most conspicuous product. In this sense I have contrasted "Cosmism" with "Anthropomorphism" as two different fashions or habits of interpreting phenomena, the contrast being more specifically carried out, in the concluding chapters of this work, between "Cosmic Theism" and "Anthropomorphic Theism." For further justification and elucidation I must refer to the body of the work, where these terms are introduced and defended as occasion requires. In view of all that is thus from time to time brought forward, I think it will appear that a more strikingly characteristic terminology would be hard to find, or one in which so great a number of kindred distinctions are expressed by so small a group of terms.

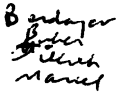
But while it is incumbent on me to declare Mr. Spencer's disapproval of this terminology, it should be added that, so far as I know, the question at issue between us is purely a question of nomenclature, and is not implicated with any essential differences of opinion as to

the character and position of the system of thought to which the nomenclature is applied. Without implying that Mr. Spencer should be held responsible for everything that is maintained in the following pages, I believe that the system here expounded is essentially his, and that such supplementary illustrations as I have added are quite in harmony with the fundamental principles which he has laid down.

Much of the new critical matter thus appears to be concerned with questions of nomenclature and other questions which hinge directly or remotely upon these. And considering how important are the "counters of thought," and how often they are made to do duty as its hard money, it will perhaps be felt that too much emphasis has not been laid upon these points. The rest of the new critical matter, as before hinted, occurs in Part III., where it is attempted to show that the hostility between Science and Religion, about which so much is talked and written, is purely a chimera of the imagination. Putting the case into other language, it may be said that to assert a radical hostility between our Knowledge and our Aspirations is to postulate such a fundamental viciousness in the constitution of things as the evolutionist, at least, is in no wise bound to acknowledge. The real

conflict, as I have sought to show, is not between Knowledge and Aspiration, but between the less imperfect knowledge of any given age and the more imperfect knowledge of the age which has gone before. For it lies in the nature of progress that the heresy or new knowledge of yesterday is the orthodoxy or old knowledge of to-day, and that to those who have learned to associate their aspirations with the old knowledge it may well seem impossible that like aspirations should be associated with the new. But the experience of many ages of speculative revolution has shown that while Knowledge grows and old beliefs fall away and creed succeeds to creed, nevertheless that Faith which makes the innermost essence of religion is indestructible. Were it not for the steadfast conviction that this is so, what could sustain us in dealing with questions so mighty and so awful that one is sometimes fain to shrink from facing their full import, lest the mind be overwhelmed and forever paralyzed by the sense of its nothingness?

VENICE, *April* 16, 1874.



CONTENTS

PAGE

INTRODUCTION. BY JOSIAH ROYCE . . . xxi

PART I. PROLEGOMENA

CHAPTER

I. THE RELATIVITY OF KNOWLEDGE . . 3

II. THE SCOPE OF PHILOSOPHY . . . 31

III. THE TEST OF TRUTH 65

IV. PHENOMENON AND NOUMENON . . 105

V. THE SUBJECTIVE AND OBJECTIVE METHODS . 142

VI. CAUSATION 215

VII. ANTHROPOMORPHISM AND COSMISM . . 239

LIST OF ILLUSTRATIONS

PAGE

HERBERT SPENCER (page 241) . . *Frontispiece*

From a photograph.

JOHN STUART MILL 98

From a painting in 1874, by G. F. Watts.

GEORGE HENRY LEWES 188

From a photograph.

AUGUSTE COMTE 248

From an engraving.

INTRODUCTION

BY JOSIAH ROYCE

THE "Cosmic Philosophy" is reprinted, in the present edition, without any change of the original text. But if the author had foreseen that his principal contribution to philosophy would remain forever unrevised, he would have deeply regretted the misfortune. During the later years of his life, the interests that determined both the form and the matter of the "Cosmic Philosophy" had been modified in a number of respects. For the first, the more recent discussions of the doctrine of evolution had inevitably placed many aspects of the subject in various new lights. On the other hand, some of the controversies that were prominent in literature in the years between 1869 and 1874 had become, through the changes of current opinion, no longer so important; and Fiske, had he himself revised his book, would probably have given to such topics decidedly less space. Thus, for instance, the extended polemic against Auguste Comte, in which this whole work had its origin, — a

polemic which now takes up so much of the text of the "Cosmic Philosophy," — could hardly have seemed to our author so necessary, had he rewritten his book about 1900. And so he would probably have retained it only in an abbreviated form, and thus space might have been won for a study of the newer aspects of the evolutionary literature. Moreover, the advances of the special sciences have now decided some matters that, when Fiske wrote in the years about 1870, were still doubtful, and have corrected some current views that he then accepted. The publication of the later portions of Spencer's "Synthetic Philosophy" have also made clear the position of the teacher whom Fiske was expounding, in regard to topics which had to be treated without such guidance in the original edition of the "Cosmic Philosophy." And of all these additional sources of light our author would have been glad to take account. Most of all, however, Fiske would have desired to restate, to supplement, and in some important respects to modify, the opinions which, in the "Cosmic Philosophy," he advances as his own regarding the problems of Religion. "The Idea of God," "The Destiny of Man," and "The Everlasting Reality of Religion," — these well-known titles of his later philosophical essays all emphasize aspects

of philosophical doctrine upon which his thought had fixed itself with notable eagerness as the years went on. He had indeed been keenly disappointed, when he began to state the results of these later reflections, to find that some of his critics regarded them as involving an *essential* change of his former methods and principles of philosophizing. This interpretation he repudiated.[1] Yet he admitted, from the beginning of the utterance of these later teachings, that his "views of the doctrine of evolution and its implications" had undergone "development" and "enlargement" "since the publication of the 'Cosmic Philosophy.'" By 1885 he had become, he said, "aware of a shortcoming in the earlier work." "That shortcoming

[1] See the Preface to *The Idea of God*, written in September, 1885: "When," says Fiske (loc. cit. p. xviii), speaking of his Concord lecture on "The Destiny of Man," "that address was published, a year ago, I was surprised to find it quite commonly regarded as indicating some radical change of attitude on my part, — a conversion, perhaps, from one set of opinions to another." Fiske hereupon declares that the argument in *The Destiny of Man* was "based in every one of its parts upon arguments already published in the *Cosmic Philosophy* and in the *Unseen World*." He adds that none of his friends "who had studied the earlier books had detected any such change of attitude; it was only people who knew little or nothing about me, or else the newspapers."

was an imperfect appreciation of the goal toward which the process of evolution is tending, and a consequent failure to state adequately how the doctrine of evolution must affect our estimate of Man's place in Nature."[1] In consequence, as he proceeded in the same connection to explain, "a new chapter needed to be written" for the completion of the "Cosmic Philosophy," although "nothing of fundamental importance" in that book needed to be changed. This "new chapter," as one may say at once, tended, as the years went on, to grow longer and more detailed and positive in its contents. The essay on "The Everlasting Reality of Religion" and the posthumously published Ingersoll Lecture on "Life Everlasting" are the latest expressions that the author found time to give to the views thus in general indicated. And the change in his opinions recognized by the author in 1885 became greater before these final papers were written.

It results from all these considerations that the original form of the "Cosmic Philosophy" could not have remained without considerable alterations in case the author had found time for the revision of the book.

2. Yet just because these alterations can never

[1] Loc. cit. pp. xix, xx.

be made, it seems unfair to the author's memory to reprint his longest and most notable philosophical book without giving the reader some connected view of the accessible evidences regarding what the changes in question might probably have been. To this end it seems necessary also to give a summary view of what the most notable features of Fiske's earlier period of thinking were. No one can feel more than does the writer of the present Introduction that the evidences as to just how this earlier period of Fiske's activity is related to his latest thought are indeed, at best, sadly fragmentary; and that our author, had he ever returned to the old ground of his "Cosmic Philosophy," would have been sure to retell his story in a fashion such as no one can now with any precision determine. Fiske was always his own best expositor; and nobody can take up the pen that fell so suddenly from his hand, and undertake to complete, at any point, his unique task. But the publishers have determined, in putting forth the definitive edition of his works, to provide the "Cosmic Philosophy" with an Introduction which shall attempt three distinct but closely related offices. These are, first, to set forth in some detail, by means of a summary analysis of Fiske's text, what was most characteristic about Fiske's method as a thinker, and what

was most notable and distinctive about Fiske's position as a student of philosophical problems, in so far as he explained or indicated this position in the "Cosmic Philosophy." In other words, this Introduction has to tell how Fiske the thinker is here distinguishable from Fiske the disciple and expositor. In the second place, this Introduction is to discuss what modification Fiske's position, especially regarding the most fundamental problems, underwent, in consequence of his development in later years, and also how Fiske's relation to Spencer's philosophy appears, in the light of those publications of Spencer which are subsequent to the production of the "Cosmic Philosophy." In the third place, the Introduction is to suggest how, in consequence of all these facts, one may fairly conceive that the original form and matter of the "Cosmic Philosophy" would have seemed to the author, in his later years, to need modification.

It has fallen to my lot to take charge of this delicate task. But by way of limiting the scope of this Introduction, I must indeed forthwith explain that it is no part of my present office, or of my desire, to criticise the "Cosmic Philosophy" from my own point of view, or to offer any estimate of the permanent worth, either of the Spencerian doctrine or of our

author's contributions to the doctrine of evolution. The sole justification of the sharply limited editorial labor here attempted must lie in the aid that it gives to the reader of this book in his efforts to conceive our author's final outcome.

I shall therefore devote this Introduction to the treatment of the foregoing topics in the order just stated. The *first* division of my account shall follow the sequence of Fiske's chapters as far as chapter xxi. of Part II. of the "Cosmic Philosophy." The *second* division shall discuss Fiske's contributions to ethical and religious problems, in the closing chapters of the work. In my *third* division I shall consider Fiske's later philosophical development. In the *fourth* division I shall briefly indicate the relation of the "Cosmic Philosophy" to those of Spencer's works which were published after its completion, and shall sum up the evidences as to the sorts of change that Fiske would have been likely to make in his book had he rewritten it.

Of necessity, the discussion, especially of Fiske's earlier chapters, in bringing out what is distinctive of his own contributions, must mention somewhat miscellaneous details, and so must produce a comparatively disunited series of impressions upon the reader's mind. It has

been necessary, amongst other things, to state such observations on the individual chapters as shall enable the reader, while he goes through the book, to appreciate at each step how Fiske is related to his sources and guides, as well as how far he is speaking for himself. In addition, my own occasional footnotes, printed along with the text of this edition and enclosed in brackets, are principally meant to enable the reader to refer back, from the various chapters of Fiske, to the relevant parts of this Introduction. A few other footnotes, also printed in brackets, accompany the text of this edition, and are intended, not as any adequate commentary on the book, but as an occasional aid to the reader in looking up references, and in becoming aware of places where what Fiske says would probably have been modified had he lived to rewrite these volumes. Some of these notes refer in very general terms to changes such as the recent progress of science would have made advisable. But in a work where Fiske so frequently uses illustrative material drawn from the most various sciences, whose special researches have become so complex since he wrote, no attempt can be made to criticise or to correct in detail all of his references to the special departments of research. It is enough if one gives, in this field, occasional aid and warning that, if Fiske

were still with us, he would often modify such references.

I

DISTINCTIVE FEATURES OF FISKE'S THOUGHT AND METHOD IN THE "COSMIC PHILOSOPHY" AS FAR AS CHAPTER XXI, PART II.

3. As we learn from our author's Preface, the present book grew out of lectures delivered at Harvard University. Just at the beginning of President Eliot's administration, on June 29, 1869, Ralph Waldo Emerson, Mr. J. Elliot Cabot, and John Fiske were appointed "to be University Lecturers on Philosophy" at Harvard, for the academic year 1869–70. On December 24, 1869, Fiske was reappointed for the year 1870–71 "to be University Lecturer on the Positive Philosophy."[1] In the Harvard Annual Catalogue for 1869–70, no mention is made of Fiske's course amongst the so-called "University Lectures" announced for that year. But under a separate title, "University Courses of Instruction,"[2] Fiske appears as one of several officers (the others being Professors

[1] See the President's Report for 1869–70, pp. 6 and 7.

[2] The Catalogue in question, on p. 101, makes a sharp distinction between the "University Lectures" of the year

Bowen and Hedge, R. W. Emerson, Mr. Elliot Cabot, Mr. Charles Peirce, and Professor George P. Fisher) who together are to give "lessons" constituting the "University Course in Philosophy." Fiske appears in this statement as responsible for "The Positive Philosophy." In the Catalogue for 1870–71, this "systematic course" in Philosophy for graduates, etc., is not announced. The plan of organizing such a scheme of graduate instruction had evidently proved for the time impracticable. But amongst the "University Lectures" for the year appears a course thus defined: "The Positive Philosophy and the Doctrine of Evolution. By John Fiske, on Wednesdays and Saturdays, at 3 P. M., beginning February 15. Thirty-five lectures."

The "systematic course" in philosophy, given in 1869–70, is mentioned in President Eliot's Report of the work for that year (pp. 19, 20). This, it may be remarked, was the first

and these two new "University Courses of Instruction." The latter (id. p. 102) are described as "systematic courses of instruction" in Philosophy and in Modern Literature, given "to graduates, teachers, and other competent persons (men and women)." "There is no examination for admission," the announcement proceeds to say. A voluntary "examination for honors" is announced in connection with the philosophical course.

in the long list of President Eliot's Reports. "Twelve students besides College officers and the Senior Class in the Divinity School," as the president informs us, attended the two graduate courses (in Philosophy and in Literature). Four graduates of the College were examined on the course in Philosophy, and of these two obtained honourable mention. The result of that year's experience, while it did not lead to a repetition of the "systematic course," induced the corporation to offer a list of thirty-three distinct courses of "University Lectures" in 1870–71. The scheme of "University Lectures" constituted in general a stage on the way towards the organization of higher graduate work at Harvard.[1]

[1] The general plan of "University Lectures" had been instituted in 1863, under President Hill. Its fortunes are discussed at length by President Eliot in his Report for 1871–72. The "University Lectures," as he tells us, because they could not be by themselves sufficiently organized, "distinctly failed as a scheme for giving advanced instruction in philosophy, history, and the humanities," and that despite the fact that they had in other respects good results in bringing together people interested in the development of higher study at Harvard. "In short," says the president (loc. cit. p. 16), "new blood and a new vitality were brought in by the University Lecture system," although the "real, steady development of the University" demanded the later formation of other plans. The place of Fiske's course of lectures as a part of this transitional stage of Harvard's higher instruction deserves mention here.

In any case, as one sees, the "University Lectures" offered admirable opportunities to give a hearing to men who had something novel to present to an academic public.

Fiske was led later to supplement his own lectures on "The Positive Philosophy and the Doctrine of Evolution," and to enlarge their scope, in the way that he describes in the Preface to the present book. The repetitions of the lectures which Fiske also mentions, and the report of them in the New York "World," evidently attracted a very general public attention. The volumes which were to contain them in finished form were anticipated with eagerness by those interested in the doctrine of evolution; and the reviewer of the "Cosmic Philosophy" in the "Popular Science Monthly" for January, 1875, opened his account by saying: "This long-expected work has at last made its appearance, and comes forth with such completeness that those who have been impatient of its delay will be glad that the author has taken the time needed to do justice to a formidable undertaking."

4. Our author's preparation for his task had been of the most varied sort. It must be left for his biographer to state in detail the course of his development as a scholar and thinker; but we here need to bring to mind a few of the most important features of his early career. Fiske was

born in 1842. Long before he entered Harvard College, in 1860, he was a very busy student, an omnivorous reader both of general literature and of history. Nor were the natural sciences neglected in those times of early boyish enthusiasm for knowledge. Fiske was also a precocious linguist; and when he entered college his learning soon became the topic of wonder, and naturally of mythology, amongst his classmates. It was consequently not surprising that he was able to enter as a Sophomore in 1860, graduating in 1863. While he was still a Junior, nineteen years of age, he published a remarkable critical article on Buckle's "History of Civilization."[1] Within a few years after his graduation he had printed a number of different papers upon philosophical and historical topics, including one very interesting essay upon the reform of university education.[2]

[1] Republished in *Darwinism and Other Essays* under the title "Mr. Buckle's Fallacies."

[2] Republished in *Darwinism and Other Essays*. The date of this paper was 1866. To 1865 belongs his review of Mill's book on Comte's *Positive Philosophy*; to 1868 his review of Motley's *History of the United Netherlands*; and in 1870 fall his essays entitled respectively "The Jesus of History" and "The Christ of Dogma." These papers give but a suggestion of the range and variety of his activities at this time. His plans included a projected history of the beginnings of Christianity.

Meanwhile he had become a follower of Herbert Spencer. Fiske has himself told us, in his address upon E. L. Youmans,[1] that he had become acquainted for the first time with Spencer's philosophical plans in February, 1860, that is, some months before his own entrance into Harvard. "I first became aware," says Fiske, "of Spencer's existence through a single paragraph quoted from him by Lewes, and in that paragraph there was immense fascination. I had been steeping myself in the literature of modern philosophy, starting with Bacon and Descartes, and was then studying Comte's 'Philosophie Positive,' which interested me as suggesting that the special doctrines of the several sciences might be organized into a general body of doctrine of universal significance. Comte's work," continues Fiske, "was crude, and often wildly absurd; but there was much in it that was very suggestive. In May, 1860, in the Old Corner Bookstore in Boston, I fell upon a copy of that same prospectus of Spencer's works, and read it with exulting delight; for clearly there was to be such an organization of scientific doctrine as the world was waiting for." The consequence was that Fiske, even as a college student, was an eager reader of Spencer's earlier works; and from

[1] See *A Century of Science*, chap. iii.

that time on he was a constant follower both of Spencer's further volumes as they appeared, and of the literature of discussion which grew up about the Spencerian and Darwinian theories. In the just quoted paper upon Youmans, Fiske has given some account of the faithful little band that, during our civil war, already constituted the nucleus of a Spencerian school in our country. "There were so few people then" (viz. in 1863), he says, "who had any conception of what Spencer's work meant, that they could have been counted on one's fingers." Fiske met Youmans in 1863. The two were from the first allies in the attempt to attract public attention to the new ideas. Yet, as we shall see, Fiske was never the mere disciple and propagandist of Spencerianism that Youmans became — and the defence of the philosophy of evolution was for him but one of the prominent interests in an extremely wealthy intellectual life.

(5.) The doctrine of evolution, which was so eagerly attacked and defended during the years between 1860 and 1880, and which has now become, in its great general outlines, a part of the common knowledge and opinion of the age, came to public notice in the sixties in two principal forms: (1) As the Darwinian theory of the "Origin of Species," and (2) as the Spencerian

Philosophy. Fiske was from the very beginning of this period acquainted with both these forms of evolutionary theory. The concept of evolution, in the form which Darwin gave it, was an affair of natural history, and fell within the province of the special sciences. But in the form which Spencer gave it, it was a general philosophical theory about the nature and origin of the whole knowable universe. Fiske was always a great admirer of Darwin, and was acquainted with the "Origin of Species" almost from its first appearance; but it was the philosophical theory of evolution, viewed in its widest sense, that interested him most, and that received his warmest adherence. Darwin he honoured as the naturalist — but Spencer he followed, in his own early publications, as his master. The reason, however, for Fiske's great personal interest in the larger philosophical implications of the doctrine of evolution was one determined by his own individual concern, as a thinker, in the problems of life and of the universe. Even where he most appeared as Spencer's disciple, he was therefore never a mere echo. He had never been a *mere* convert to Spencer's theories. And we cannot well understand the use that Fiske later made of his evolutionary views, and in particular we cannot understand how he applied the doctrine

of evolution, as he later did, to the problems of Ethics, of Religion, and of human history, unless we see what it was about the new theories of Spencer, and of the other evolutionists, that attracted Fiske to the study of the subject early in the sixties, while the whole matter was still a novelty and while our thinker himself was hardly more than a boy. It is needful to point out at once what I suppose to have been the chief reason why Fiske became so early and so enthusiastic an evolutionist, and what it was about Spencer's doctrines which made Fiske so long willing to be regarded by the public as in the main simply a disciple and expositor of the new doctrine of evolution as Spencer taught it.

6. Disciples and partisans, in the world of religious and of philosophical opinion, are of two sorts. There are, first, the disciples pure and simple, — people who fall under the spell of a person or of a doctrine, and whose whole intellectual life thenceforth consists in their partisanship. They expound, and defend, and ward off foes, and live and die faithful to the one formula. Such disciples may be indispensable at first in helping a new teaching to get a popular hearing, but in the long run they rather hinder than help the wholesome growth of the very ideas that they defend; for great ideas live by growing, and a

doctrine that has merely to be preached, over and over, in the same terms, cannot possibly be the whole truth. No man ought to be merely a faithful disciple of any other man. Yes, no man ought to be a mere disciple even of himself. We live spiritually by outliving our formulas, and by thus enriching our sense of their deeper meaning. Now the disciples of the first sort do not live in this larger and more spiritual sense. They repeat. And true life is never mere repetition. On the other hand, there are disciples of a second sort. They are men who have been attracted to a new doctrine by the fact that it gave expression, in a novel way, to some large and deep interest which had already grown up in themselves, and which had already come, more or less independently, to their own consciousness. They thus bring to the new teaching, from the first, their own personal contribution. The truth that they gain is changed as it enters their souls. The seed that the sower strews upon their fields springs up in their soil, and bears fruit, — thirty, sixty, an hundred fold. They return to their master his own with usury. Such men are the disciples that it is worth while for a master to have. Disciples of the first sort often become, as Schopenhauer said, mere magnifying mirrors wherein one sees, enlarged, all the defects of a doctrine. Disciples of the second sort coöperate

in the works of the spirit; and even if they always remain rather disciples than originators, they help to lead the thought that they accept to a truer expression. They force it beyond its earlier and cruder stages of development.

Now Fiske was a disciple of evolution in this second sense. And he was so because there was an interest of his own, which from the first was prominent, even in boyhood, in his mind, and which later developed as his years increased, and which was not due to Spencer. This was Fiske's interest in human life and in human history, when one takes the latter term in its widest sense. Already as a boy, still more as young man, he read enormously in the direction of what are called the humanities. He read general literature, annals, studies of the history of institutions, studies of the history of religion. To learn about the larger aspects of human life was his passion. He early planned great works upon the history of religion or of civilization in general. He was always fond of comparative philology, of folk-lore, of ethnology, — of whatever threw light upon man's nature and destiny. Now had there never been Darwin or Spencer, and had the modern generalizations about the Origin of Species and the Descent of Man been postponed for another half century, Fiske would still have felt, from the start, this boundless curiosity about

mankind and their doings, and would have desired to win some notion of the unity of the entire process. It was this interest, however, that turned him in the direction of the new doctrine of evolution when it first came into sight. This doctrine, with its generalizations regarding the animal origin of man, regarding the connection between man and all nature, regarding the presence of one set of laws throughout animate and inanimate nature, promised to give unity to his studies of human history, promised to define the right method for comprehending the laws of history, and bade fair to throw light upon the questions of human destiny so far as these questions could become accessible to our intelligence. Darwin reached his doctrines as a naturalist. Spencer came to formulate his philosophy under the combined influence of the motives of a liberal social reformer and a comparative student of various natural sciences. But Fiske came to the doctrine of evolution as an ardent lover of human history, who above all longed to read the secret of how man came to believe, to aspire, to build up, and to transform, in the fashion that, in his religious, in his artistic, in his political, and in his moral activities, man has always followed.[1]

[1] The reviewer in the *Popular Science Monthly*, in the article above cited (Jan., 1875, p. 367), expresses his own view of Fiske's relation to the doctrine of evolution as fol-

The consequence of this ruling tendency in our author appears, in the "Cosmic Philosophy," in the prominence there given to the problems of human development, — to the laws of history, to the evolution of doctrine, and to religious issues. It is also exemplified by his own principal contribution to evolutionary theory, viz. the doctrine of the significance of the prolongation of the period of infancy as a factor in the evolution of mankind. The same ruling tendency determines the prominence of historical writing in all the periods of his literary activity, and is above all responsible, as we shall see, for the direction finally taken by his thought concerning the teleological interpretation of the process of evolution.

7. Thus far, we have learned something of the way in which our author came to write his book, and of the spirit that guided him in approaching the task. We have now to consider what is most characteristic about his mode

lows: "We have here, not the work of a naturalist or biologist, but rather of a literary writer, a student of history, philosophy, and theology, who, without presuming to speak with authority on matters of physical science, has still acquired an extensive familiarity with the methods upon which sound scientific conclusions are reached, and has derived from the various departments of natural knowledge no inconsiderable aid in forming and verifying his theory of things."

of treating the Spencerian doctrine in these volumes.

The "Cosmic Philosophy," even when considered quite apart from its more original portions, is nowhere a mere summary of the Spencerian system, in so far as that system had been formulated at the time when the book appeared. Whatever the degree of Fiske's agreement with Spencer's opinions, his mode of literary treatment is much more independent than is customary in the contemporary disciple who is portraying his master's position. Fiske freely abbreviates, rearranges, introduces episodes of his own into the discussion, gives accounts of matters that Spencer had discussed, not in the System of Synthetic Philosophy, but in separate essays, and in general feels authorized to restate the case as he himself has rethought it. One of the most notable and recurrent literary features of the discussion is the treatment of Comte, whose views are compared with Spencer's at various places. This feature is sufficiently explained by the above-mentioned plan of the original course of lectures at Harvard. Nevertheless, as was also indicated at the outset of this Introduction, we have here precisely that side of the "Cosmic Philosophy" which least continuously interests a reader of the twentieth century.

For Comte no longer looms up on our horizon as so large an object as he seemed to many of Fiske's readers in 1870. It is partly due to Fiske and to Spencer, and still more due to the general progress of thought, that Comte, while always an historically interesting figure, has no longer a very vital importance for contemporary opinion. Nevertheless, it is fair to observe that in many recent discussions of the Logic of the sciences, by writers such as Mach, Pearson, Hertz, and others, there is indeed a recurrence to certain radically empiristic opinions regarding the nature of "axioms," and regarding the inability of our thought to assert even the existence of anything beyond "phenomena." And such recent opinions, if discussed in the time when the "Cosmic Philosophy" was written, would generally have been classed with the Comtean "Positivism" against which Spencer and Fiske both contend. But even this newer "phenomenism" or "radical empiricism" seems in general little dependent, historically, upon the personal teachings of Comte; and whatever its historical relations to him may be, it certainly does not lead contemporary readers to feel as much interest as Fiske, in 1870, could fairly presuppose, in the special issues regarding the Comtean classification of the sciences, regarding the "three

stages," or regarding the value of the thoughts that belong to Comte's latest period of activity. The distinctively and consciously Comtean school of disciples has now nearly passed away. And nobody nowadays (thanks in part to Fiske himself) needs any extended argument to prove that Spencer, at least, is no follower of Comte.

Besides the portion of the "Cosmic Philosophy" which states and defends the Spencerian doctrines as such, our work also contains Fiske's independent treatment of Social Evolution (which Spencer had not yet systematically discussed) and Fiske's account of the relation of Philosophy to Religion, — the most important part of the book, and the one which, as we have already seen, he would most have modified in later years. Nevertheless, the truly independent spirit shown by Fiske extends, even in the explicitly expository portions of his work, beyond the mere form of restatement. For there are some matters which Spencer had, in Fiske's opinion, left ambiguous, and which Fiske undertakes to decide and to express unambiguously. In consequence, in at least one important respect, he comes to stand in opposition to certain expressions of his master, and that, too, in a case where we may well doubt whether there was any ambiguity about what Spencer asserted. As we are here concerned

not with the exposition of Spencer, but with the characterization of Fiske, it is, however, not necessary for us to discuss at all adequately the relation of these divergencies to the various motives which guided Spencer in the statement of his own system. The "Synthetic Philosophy" is a complex organism, the expression, in fact, of many different motives. It is not surprising that its author was unable, at the first writing of his opinions, to make all his expressions clear, unambiguous, and free from inconsistency. The historian of the Spencerian doctrine would have to discuss in detail a good many questions about the master's growth, intent, and form of expression, which concern us only incidentally. Our account has to do with what Fiske himself saw as the true interpretation and development of Spencer's meaning, with what he added of his own thinking to his interpretation of Spencer, and with what he accordingly stated in the "Cosmic Philosophy." The text of our treatise we must now follow with some detail, and must attempt to distinguish at each point Fiske's personal contributions to the subject.

8. The "Prolegomena" of Fiske's book open with a chapter on the "Relativity of Knowledge." Fiske here summarizes especially chapters ii., iii. and iv. of Part I. of Spencer's

"First Principles." He opens with the problem discussed in chapter iii. § 16 of the latter treatise, viz., with the problem of the infinite divisibility and the ultimate constitution of matter. From this problem, a few pages later, he swiftly turns to that of Spencer's chapter ii., on "Ultimate Religious Ideas," and summarizes the argument of Spencer's §§ 11–14. The metaphysical conceptions of the Infinite and Absolute are criticised, and our inability to know the true nature of ultimate reality is declared to follow from the considerations which Hamilton and Mansel emphasized. Hereupon Fiske passes to the general problem of the nature of knowledge, and reinforces the considerations of Spencer's chapter iv. of the "First Principles," on the "Relativity of All Knowledge," by illustrations drawn in part from Spencer's "Psychology," but also in part devised at Fiske's own pleasure. The conclusion, as restated at the outset of chapter ii. of Fiske's exposition is: "That we can only know that which is caused, which is finite, and which is relative;" "that we are forever debarred from any knowledge of the Absolute, the Infinite, or the Uncaused; that we can affirm nothing whatever concerning the ultimate nature of Matter or Mind, and that all our knowledge consists in the classification of states of

consciousness produced in us by unknown external agencies." So far, the fundamental propositions of Spencer's theory of knowledge are closely followed. The exposition shows, however, both great freedom of expression and decided condensation.

9. Fiske's chapter ii., on the "Scope of Philosophy," corresponds, in its place in the exposition, to Spencer's chapter i. of Part II. of the "First Principles." But the freedom of expository treatment is still greater than before. Spencer's chapter is here briefer than Fiske's. The greater extent of the latter's exposition is due to the fact that he develops at some length the contrast between philosophy and special science, using material drawn from Spencer's essays, as well as illustrations of his own. In chapter iii., on "The Test of Truth," Fiske first appeals, in the early part of the chapter, to Lewes, rather than to Spencer, as his guide to a sketch of the history of the problem of the nature of necessary knowledge. Thereafter he states in his own words Spencer's canon of necessary truth, viz. the principle that "a proposition of which the negation is inconceivable is necessarily true in relation to human intelligence." In illustrating this principle, Fiske unites it with the doctrine of the "relativity of knowledge" in a fashion that the last phrase of

the foregoing quotation indicates. While he probably thus well states the master's true mind as to the application of the famous Spencerian test of truth, Fiske is more explicit, I think, than Spencer, in speaking of this famous test as *wholly relative to human intelligence.* There *might* exist some other intelligence, Fiske asserts, that could conceive what we cannot conceive. But Spencer upon occasion says ("Principles of Psychology," Part VII., chapter xi., § 433, vol. ii., p. 426 of the American edition): "Reasoning itself can be trusted only on the assumption that absolute uniformities of thought correspond to absolute uniformities of things." The theoretical issue here involved is a difficult one, that cannot now be further discussed. But it will be seen that here too Fiske well uses his freedom as expositor. This chapter iii. of Fiske most nearly corresponds to the just cited chapter of Spencer's Psychology. The Spencerian test of truth is, however, repeatedly used and illustrated throughout the "First Principles."

The next chapter, the fourth in Fiske's Prolegomena, discusses the relation of "Phenomenon and Noumenon." Here he has to deal with one of the most technical and difficult of Spencer's purely philosophical discussions, viz. that regarding the necessity and truth of what

Spencer, in the Psychology, called "Transfigured Realism." The thesis is that there is a reality beyond consciousness, and independent of our knowledge of it, notwithstanding that this independent Being, or Noumenon, is essentially unknowable. The argument of the chapter corresponds, in brief, to the greater part of Spencer's (already cited) extended discussion in Part VII. of the Psychology, in so far as that discussion has not been represented by Fiske's chapter iii. But Fiske gives to the historical part of the discussion a coloring derived from the "History of Philosophy" of Lewes, from Ferrier's discussion of Berkeley, and from his own reading of Locke, Berkeley, and the later classic British philosophers who are principally concerned in this inquiry. Fiske's treatment of Berkeley, while agreeing as to the main issue with Spencer's criticism of that philosopher, is here more sympathetic in tone than is that of Spencer. And here, too, first appears a certain emphasis that Fiske lays upon Berkeley, — an emphasis that enters into his own later arguments about the relations of matter and mind. We shall have occasion to lay stress upon this matter further on in our own survey. It suffices at present to say that Fiske explicitly declares Berkeley's analysis of the *phenomenal* concept of matter to be correct. Berkeley, in Fiske's

view, erred only in denying the existence of an unknowable *noumenal* substrate of the material world. But in so far as Berkeley's analysis of the concept of matter is correct, Fiske later uses the results of this analysis to vindicate the Spencerian doctrine from all affiliation with materialism. And while at every step of this process Fiske could insist that he was expounding Spencerian opinions, still it was as a consequence of this very vindication that Fiske was led to results which finally made his views about the "psychical nature" of the ultimate reality diverge from those of Spencer. Here, in fact, we find the first indication of that disposition to interpret the ultimate in "psychical" terms which in Fiske's latest period brought him near to the acceptance of some of the formulas of modern constructive Idealism. As to the main thesis of this chapter, it is expounded with great simplicity and clearness; and Spencer's form of Realism could not be made plainer than is here done.

11. The extended chapter v. of Fiske's Prolegomena, on "The Subjective and Objective Methods," corresponds to no one portion of Spencer's exposition, but is a free formulation of Fiske's view of the general logic of scientific and philosophical methods. It is of course in essential agreement with Spencer. It follows, in

fact, well-known types of modern opinion. Its criticisms of the history of thought relating to method are founded in part upon Lewes's "History of Philosophy," but the authorities are supplemented at every point by Fiske's own wide reading. The criticism of the Comtean philosophy occupies in this chapter, for the first time in the book, a large space in Fiske's text, and in particular Comte's aberrations of opinion in his final period of work are pointed out. This criticism of Comte was presumably a part of the original course of lectures at Harvard.

12. The chapter on "Causation," chapter vi. of the Prolegomena, corresponds, once more, to no one chapter of the "First Principles." It is in fact much more suggested by John Stuart Mill, and by his famous review of Hamilton, than by Spencer's method of dealing with the same problem. By Spencer questions concerning the invariability of causal sequence are usually treated in the closest relation to the discussion of the Persistence of Force. Fiske, however, although varying the form of treatment, keeps in essential harmony with the Spencerian position. He especially emphasizes the impossibility of our discovering what the true nature of causal *nexus* is, and so uses the discussion to illustrate the relativity of knowledge. As against Mill, he insists that, never-

theless, an objective causal *nexus* must be recognized as existent, although inscrutable, and that the law of causation is a necessary truth, which "can be explained and defended only as the product of a mental limitation due to absolute uniformity of experience," while the true explanation of our belief in causation must reconcile the opposed views of "Kant and Hamilton, on the one hand, and of Hume and Mill, on the other hand," in the well-known Spencerian fashion.

(13) Chapter vii., on "Anthropomorphism and Cosmism," recurs to the critical discussion of the philosophy of Comte. This chapter clearly belongs in substance to the original series of lectures upon which the book was founded. At length it portrays Comte's doctrine of the "three stages" of the history of thought, and connects the criticism of this doctrine with the general theory of the development of scientific and philosophic method. With the detail and with the justice of Fiske's estimate of Comte we are not here concerned. The reader is impressed, however, especially in view of Fiske's later treatment of the problems of religion, with the fact that, for him in this chapter, "the progress of that kind of knowledge which we call philosophy is one and the same," viz. "a continuous process of deanthropomor-

phization," or "the stripping off of the anthropomorphic attributes with which primeval philosophy clothed the unknown Power which is manifested in phenomena." This single and continuous process, marking the progress of thought, Fiske substitutes for Comte's three stages. The result of the process "involves the extrusion of the notion of a volitional cause altogether, and leaves us with the conception of a Cause . . . which, equally with the anthropomorphic conceptions which have preceded it, is the proper object of religious feeling, but concerning the nature of which — in itself, and apart from its phenomenal manifestations — the human mind can form no verifiable hypothesis." The doctrine thus defined is the one which Fiske now calls "Cosmism," the name being, as he in substance explains in the Preface to his book in speaking of the term "Cosmic Philosophy," his own, and not approved by Spencer. "Cosmism," as thus defined, is opposed to Comte's Positivism as truly as to Anthropomorphism. "Cosmism" is of course in substance the Spencerian doctrine of the Unknowable Power, and is contrasted with Positivism in view of the fact that Comte admits no unknown power behind phenomena. A reference occurs, in the latter part of the chapter, to Spencer's "Reasons for Dissenting from the Philosophy

of M. Comte," an essay which has always to be borne in mind in considering Spencer's relation to Positivism and Fiske's discussion of that doctrine. We shall later see (Division III. of this Introduction, especially §§ 40 and 41) how much Fiske's definition of "Cosmism" was altered before his death.

14. The criticism of Comte is continued in chapter viii., on the "Organization of the Sciences." But here Fiske also returns to his directly expository task; for after stating the Comtean classification of the sciences, he proceeds to criticise Comte upon the basis of a statement of Spencer's position in the three essays — "The Genesis of Science," "The Classification of the Sciences," and "On Laws in General, and the Order of their Discovery." These essays are now published in the second volume of the definitive or "Library Edition" of Spencer's "Essays, Scientific, Political, and Speculative." Spencer's classification of the sciences is stated by Fiske in a somewhat abridged form. Chapters ix. and x. of Fiske's text continue the criticism of Comte in a manner which does not, for our present purposes, throw any especially new light upon what is distinctive of Fiske's position as an expositor of Spencer or as a student of central philosophical problems. Chapter ix. deals, after Mill,

with the general logic of scientific methods, in addition to the criticism of Comte. Chapter x. undertakes to summarize the precise range of the agreement and disagreement between "Cosmism" and "Positivism." With chapter xi., "The Question Stated," Fiske returns in his discussion nearer to the Spencerian order of the day, by announcing the task of a Synthetic Philosophy in the fashion of which Spencer makes use in the first, as well as in later, chapters of Part II. of the "First Principles."

15. Hereupon, in Part II. of his own treatise, Fiske begins his exposition of the general law of evolution. The first four chapters of this part need no extended remark in this present connection. They furnish a masterly and very clear exposition of chapters iii. to xxiv. of the second part of Spencer's "First Principles." Fiske's fidelity is close, despite his great abbreviation of Spencer's discussion. While the large illustrative material includes examples that the later progress of science has often set in new light, and that Fiske, if rewriting his book, might therefore wish to modify, no question of fundamental importance for the understanding of Fiske's personal position here arises. He is in these chapters the disciple, and desires only to appear as such. To criticise his attitude here would be to raise the whole question

of the philosophical value of Spencer's main ideas — a matter with which I have at present no concern.

16. In chapter v. of this Second Part, Fiske begins, however, the task of supplementing the text of the "Synthetic Philosophy" in an important respect. Spencer, in the Prospectus of his system, had announced that he should not undertake, in any separate division of the Synthetic Philosophy, the "application of the First Principles to Inorganic Nature." "This great division," said Spencer, "it is proposed to pass over; partly because, even without it, the scheme is too extensive; and partly because the interpretation of Organic Nature, after the proposed method, is of more immediate importance."[1] Nevertheless, Spencer had published essays bearing upon the problems of inorganic evolution, and had freely used illustrations belonging to this realm in the "First Principles" and elsewhere in the course of the exposition of his system.[2] Under the title

[1] See the "Prospectus" as reprinted in the Preface to the original edition of the *First Principles* (a Preface found also in all the later editions of that work).

[2] See especially first the relevant passages in Spencer's paper on "Progress, its Law and Cause" (Spencer's *Essays*, Library Edition, vol. i. pp. 8–62); secondly, the essay on "The Nebular Hypothesis" (*Essays*, vol. i. pp. 108–155,

"Planetary Evolution," Fiske undertakes, in chapter v., to bring the processes of inorganic evolution into their natural place in the exposition of the Synthetic Philosophy. The account of the nebular hypothesis which follows is not a mere exposition of Spencer's view. With regard to one notable matter, that of the origin of the asteroids, Fiske opposes Spencer, and undertakes, at some length, to present a special hypothesis of his own.[1] It is no part of my present office to discuss the merits of this hypothesis. The student of Fiske's chapter will naturally desire more light, both upon the earlier history and the recent fortunes of the Kantian and Laplacean hypotheses about the origin of planetary systems. He will find a good recent bibliography in the Introduction to Professor W. Hastie's recent book, "Kant's Cosmogony."[2] In addition to the statement of the nebular hypothesis in its general application to the stellar and solar systems, Fiske,

with notes later added, 155–181); and further the essays on "The Constitution of the Sun" (id. i. 182–191) and on "Illogical Geology" (id. i. 192–240).

[1] Spencer elaborates and defends his view in the later notes, appended to the essay on the nebular hypothesis, and published in the final edition, in 1890.

[2] Glasgow, 1900. See especially the second section of Professor Hastie's Introduction, pp. xviii–xxviii.

in the latter part of the chapter, gives some account of the relation of this hypothesis to lunar phenomena, and here, as throughout the chapter, touches upon matters of detail which he would frequently have had to express with some modifications, in view of the later advances of knowledge, had he been able to revise his book.

17. Chapter vi., on "The Evolution of the Earth," is brief, and touches upon matters which Spencer has occasion to treat, in passing, in the illustrative paragraphs of the text of the "First Principles," even while he is stating the general characteristics of evolution. Fiske's chapter vii., on "The Sources of Terrestrial Energy," stands in a comparatively free relation to the order of Spencer's exposition. It corresponds most of all to the chapter on "The Transformation and Equivalence of Forces," chapter viii. of Part II. of the "First Principles." Fiske's chapter contains a summary of well-known portions of the modern theory of energy. Significant here is especially Fiske's statement of the relation of the doctrine of energy to nervous and mental phenomena. Here, in fact, we come upon one of Fiske's most important lines of thought. He carefully avoids saying that physical energies are *transformed* at any point *into* mental processes. The passage in Fiske's text corresponds, however, in the

main, to a passage in the cited chapter of Spencer where the latter (in the editions of the "First Principles" previous to the last) explicitly declares that: "The law of metamorphosis, which holds among the physical forces, holds equally between them and the mental forces. Those modes of the Unknowable which we call motion, heat, light, chemical affinity, etc., are alike transformable into each other, and into those modes of the Unknowable which we distinguish as sensation, emotion, thought; these, in their turns, being directly or indirectly retransformable into the original shapes. That no idea or feeling arises, save as a result of some physical force expended in producing it, is fast becoming a commonplace of science." Fiske's mode of expression is deliberately different from this one. Citing substantially the same facts as Spencer, Fiske draws the conclusion that "there is no such thing as a change in consciousness which has not for its *correlative* a chemical change in nervous tissue." This correlative, however, is not said by Fiske to be *transformed* into the change of consciousness, but to accompany it and to *correspond* to it. We shall see later how Fiske insists upon the view, mentioned in passing in the present chapter, that "the gulf between the phenomena of consciousness and all other phenomena is an

impassable gulf." We shall also see how he combines this view with that acceptance of the Berkeleyan analysis of the *phenomenal* concept of matter which we have noted above, in §10 of this Introduction. The result of the combination is a doctrine which stands in opposition to what Spencer expresses in the passage just quoted. Yet Fiske evidently believed himself to be true to what Spencer implicitly meant to say. As a fact, in the last edition of his "First Principles" (1900, § 71 and § 71 *a*, *b*, *c*,) Spencer somewhat modifies his language regarding this point. While he does not pass over to Fiske's position, he speaks, nevertheless, doubtfully as to the "transformation," and asserts only a *probability* (as against Huxley's doctrine of animal automatism) that the state of consciousness is a "factor" in such transformations of energy as occur when voluntary acts are performed, or when, as in "passive emotions," nervous changes result in producing conscious states that do not at once get active motor expression. He now admits, however, that this probability does not amount to proof, and that consciousness may be only a "concomitant of certain nervous actions." Fiske, however, remained to the end certain that physical energy and consciousness cannot be transformed the one into the other.

18. With chapter viii. of Part II. of the "Cosmic Philosophy," Fiske begins the discussion of the topics most characteristic of the conception of evolution as that conception first became known to the general public. The questions of the next few chapters are: First, in chapter viii., the problem of the origin of life; second, in chapter ix., the issue as between the hypotheses of Special Creation and of Derivation; third, in chapter x. (with which the second volume of the original edition opens), the case for the Darwinian theory of Natural Selection; fourth, in chapter xi., the discussion of the objections to the Darwinian theory which had been founded upon the absence of "missing links," and upon the "infertility of hybrids." In dealing with all these matters, Fiske is at once the child of his time and the able advocate, stating the case for the theory of the transformation of species, and of the evolution of living forms, in presence of the controversial tendencies then prevalent. Of course had Fiske rewritten these chapters at a later time, there would have been many details to modify; and not a few of the controversial matters which he made prominent would have lost in his eyes the importance that the state of discussion then gave them. We have to remember that when Fiske prepared his Harvard

lectures, Agassiz still dominated the teaching current upon these issues at Harvard. The Darwinian theory, equally with Spencer's philosophy, was on trial before the public. Elementary objections and misunderstandings, as well as the far more weighty problems of the new theories, had to be considered and explained. Moreover, the now obsolete controversy concerning "spontaneous generation" was, when Fiske published these volumes, still prominent in the literature of the day. The more modern researches of the bacteriologists were in their infancy. The special question as to the "factors of organic evolution" had not yet become disengaged from its natural confusion in the minds of readers with the more general question as to whether organic forms were the product of special creation or not. Even the importance of the difference between the Spencerian and the Darwinian tendencies in the explanation of these factors of organic evolution had not yet been as much emphasized as the controversy between the "Neo-Lamarckians" and their opponents has since emphasized it. In short, more than a quarter of a century of restless scientific progress lies between these brilliant chapters of Fiske and the present state of opinion and of knowledge concerning evolutionary theory.

It is therefore obvious indeed that no one would turn to these pages of Fiske's book for adequate information concerning the doctrine of organic evolution as now known and estimated; yet as an historical document in the evolutionary controversy these chapters retain a distinct importance, and they doubtless had much to do with the education of public opinion in this country.

The relation of these same chapters to the exposition of the Synthetic Philosophy of Spencer is, meanwhile, extremely free. The general argument against the hypothesis of Special Creation in Fiske's chapter ix. is based upon one that Spencer had early elaborated in his essay of 1852 on "The Development Hypothesis," — an article which, as Spencer says, "struck the keynote of all that was to follow." [1] This earliest statement of Spencer's position is further elaborated in chapter ii. of Part III. of the first volume of Spencer's "Principles of Biology," and to this chapter of Spencer's, Fiske's statement in a measure corresponds. The whole of Spencer's Part III. of the Biology is devoted to his own statement of the evidence for the theory of organic evolution, and to his account of the factors of this process. Spencer's chapter xii. of this Part, on "Indi-

[1] See Spencer's *Essays*, Library Edition, vol. i. p. 1.

rect Equilibration," deals briefly with his view of the range of effectiveness of "Natural Selection," and in the second volume of the Biology (in a note to § 373, chapter xiii. of Part VI.) Spencer states, in an interesting way, his own view of his historical relation to the Darwinian doctrine regarding the selective factors in the evolutionary process.

In seeking for the distinctive features of Fiske's thought, we here need look no further, in case of these chapters, into his relations to the contemporary literature. His occasional use of evolutionary illustrations derived from the history of language is characteristic of his own habits as a student. The philological theories to which he appeals in a discussion of chapter ix. have been, as I gather from hearsay, considerably modified in the recent progress of the Science of Language; and Fiske would, if writing at present, here revise some of his statements. Throughout these chapters, as before, we find Fiske frequently independent in the choice of his illustrative material, even where he is expounding the theories of others.

19. In chapter xii., on "Adjustment, Direct and Indirect," Fiske makes a transition to a closer relation to Spencer's distinctive views of the nature of life, and of the factors of organic evolution. The transition is accomplished

through pointing out the need of supplementing natural selection by other factors. "Direct adaptation" appears as necessary to an explanation of the evolution of sense-organs, such as the eye and the ear, and to the meeting of other difficulties in the way of the hypothesis of Darwin. The arguments are in the sense of Spencer's general discussion in Part III. of the "Biology." Fiske thus leads over to a statement, in chapter xiii., of the Spencerian definition of "Life as Adjustment." This now so famous definition is developed at length by Spencer in Part I. of the "Biology," chapters iv., v., and vi. Fiske's summary is brief, and is intended chiefly to prepare the reader for the discussion of the psychological theories which immediately follow.

20. Chapter xiv., on "Life and Mind," is an exposition of the Spencerian definition of the nature of mental processes. Except to show his usual care in insisting upon the contrast between mental and physical phenomena, and in warding off any tendency on the reader's part to interpret Spencer's doctrine as at all verging towards materialism, Fiske's exposition here involves no features upon which our attention need at present rest. The polemic against Comte continues. But chapter xv., on "The Composition of Mind," undertakes to

deal with one of Spencer's most technical and questionable speculations, — that relating to the ultimate elements of psychical life, and to the way in which they are "compounded" in order to form consciousness. While carefully using the term "*psychical* shock," rather than Spencer's original phrase "nervous shock," to designate the hypothetical "ultimate unit of consciousness," and while thus showing the same keen sensitiveness as before to the need of keeping asunder, in the reader's mind, the "psychical" and the "physical," Fiske finds no essential difficulty in the way of accepting the substance of the Spencerian hypothesis, and in supposing mental life to be composed of elements which are separately unconscious. He speaks therefore still, in this chapter, as expositor and disciple. Yet he has in mind, nevertheless, the motive that later proved so powerful in leading him away from his master's attitude in view of the problem of the relation of mind to the Ultimate Reality.

21. Chapter xvi., on "The Evolution of Mind," seems to the reader to be also, in the main, expository of Spencer; yet Fiske informs us in the Preface that "the chapter was mostly written, and the theory contained therein entirely worked out, before the publication of Part V. of the second edition of Mr. Spencer's 'Princi-

ples of Psychology.'" Hereby one sees how fully and how early he had grasped the spirit of his master. The theories in question in this chapter belong amongst the most discussed topics of evolutionary psychology in recent years. The question of "race-experience," the problem whether "acquired characters," especially when they are "psychical characters," can become hereditary, the issue as to whether instincts are the remains of once-conscious habits from which consciousness has fallen away in the course of evolution, — these are matters still more vital in present theoretical inquiry than they were when Fiske wrote. He would therefore certainly have added much to the argument of this chapter had he rewritten it. How much he would have found to change in the light of more recent research, it is impossible to say. For the issue in question is still undecided.

22. Chapter xvii., on "Sociology and Free Will," begins the series of chapters which in the "Cosmic Philosophy" more directly represent Fiske's personal point of view, and which contain, along with a general and sometimes a close agreement with Spencer, Fiske's principal contributions to the theory which he is expounding. At the time when Fiske prepared the "Cosmic Philosophy" for the press, Spencer's book on "The Study of Sociology" had indeed already

appeared (1873), but the "Principles of Sociology," as a part of the "Synthetic Philosophy," were still in process of preparation. On the other hand, Fiske's personal studies had prepared him to treat the problems of social evolution with a good deal of independence. The place which the philosophical study of history occupied in his mind has already been indicated above (§ 6). The Preface to the "Cosmic Philosophy" names the year 1866 as the date of the writing of chapters xvii. and xviii. It now becomes especially necessary that, without indeed following too closely the text of the remaining chapters of Fiske's Part II., we should give a summary of the positions that they represent.

A study of Sociology must be based upon a conviction that social phenomena are subject to law. Fiske interprets this conviction in a familiar way, and accordingly finds the belief in the "Freedom of the Will" an obstacle to the progress of sociological study and of historical science. In chapter xvii., on "Sociology and Free Will," a chapter decidedly more youthful in spirit and in method than is the most of the book, he attacks the problem of freedom with a vigorous gayety of polemic which leaves nothing to be desired in the way of plainness of speech. Interpreting freedom as equivalent to the lawlessness of volitional phenomena, Fiske makes

short work, both of the ethical and of the psychological aspects of his problem. The more subtle philosophical considerations regarding the problem, as the history of thought has brought them from time to time to light, Fiske indeed does not consider. They obviously do not interest him. We have to remember that the whole discussion has for Fiske a practical motive, viz. that of clearing the way in the reader's mind for a study of the laws of social phenomena. To these laws Fiske proceeds in chapter xviii., on the "Evolution of Society." He first considers the question of the universality of progress, and points out that the doctrine of evolution, as he understands it, is perfectly consistent with affirming that in human history "progress has been in an eminent degree contingent and partial." For "the great fact to be explained is either the presence or the absence of progress," just as, in the theory of evolution, the matter to be explained is the *contrast* between the conditions that lead to evolution, and those that entail dissolution. And just as evolution, as the positive process, is the principal topic of study in the Spencerian philosophy, while dissolution is briefly explained as resulting from a reversal of the conditions that determine evolution, so, as Fiske now points out: "Whether manifested or not in any particular community, progress is

still the all-important phenomenon to be investigated. It is the one grand phenomenon, to explain the presence and the absence of which is to explain the phenomena of history. . . . The study of the progressive communities furnishes us, as we shall see, a law of history; a law which, in its most general expression, covers the phenomena presented by the non-progressive communities likewise."

(23) Fiske hereupon passes to the definition of the "prime factors" in social progress, viz. "the Community and its Environment." The concept of the environment, in case of a civilized people, is for Fiske a very broad one, including not only the physical but the intertribal or the international relationships of the community, and also embracing its historical relationships to the past of human civilization. Fiske emphasizes the importance of the intellectual and moral environment of a people, as against the merely physical environment. He is consequently able also all the more easily to emphasize the thought that the "equilibration" of the community with its environment must, in case of progress, especially involve "the continuous weakening of selfishness and the continuous strengthening of sympathy," both within each community and amongst various progressive communities as they tend to coalesce into larger aggregates. The

growth of the community in size and in integration both determines, and in its turn is furthered, by "the gradual enlargement of the area over which the altruistic feelings extend." "The altruistic feelings, finding at each successive epoch a wider scope for action, have become gradually strengthened by use."

Furthermore, social growth, like biological evolution, is "a process of adaptation, — a continuous establishment of inner relations in conformity to outer relations." And as to this relation of the community to the environment, "the heterogeneity of the environment is the chief proximate determining cause of social progress." Hence, since the environment of the community includes the traditional past of society, "civilization advances much more rapidly in modern than it did in ancient times," — a consideration upon which Fiske both in his later historical and in his philosophical writings very frequently enlarges.

From such general considerations Fiske then passes on to the feature by which "social integration" is especially distinguished from "biological integration." As an organism grows more coherent, its various parts tend to lose their individual independence. But: "In social development, corporate life is more and more subordinated to individual life. The high-

est organic life is that in which the units have the least possible freedom. The highest social life is that in which the units have the greatest possible freedom." The reason for this peculiarity of social evolution is the Spencerian reason, that in a society the psychical life belongs, not to the social organism as a whole, but to the individuals. Summing up these various considerations regarding the processes of social progress, Fiske then proceeds to state the "law of progress" in the well-known general terms of the Spencerian formula of evolution, with the addition of a clause at the end, to the effect that in social evolution "The constituent units of the community become ever more distinctly individual," despite the "definite, coherent heterogeneity" which, according to the Spencerian formula, must mark progress on the whole. The view thus stated is in known agreement with Spencerian results, and Fiske himself is fully conscious of his dependence upon Spencer; but on the other hand, in the absence of the definite working out by Spencer, as yet, of the "Sociology," Fiske was obliged to collect his own material, and to make, in some measure, his own inductions. This, even at the youthful period when this chapter assumed its original form, he was, as we have seen, amply equipped to do; and so the chapter contains a

good deal that is characteristic of his own thinking processes.

24. Chapter xix., "Illustrations and Criticisms," contains, in the main, a continuation of the polemic against Comte, which is here joined with a cordial recognition of Comte's services in defining progress as including the passage from military to industrial conditions. Fiske asserts, however, that this passage needs a "rational explanation," which Comte fails to give. What Fiske thinks himself able to prove, as to this point, is that: "The exigencies of self-protection entailed by the primitive state of universal warfare furnished of themselves the conditions for the rise of industry," while "Industry — the offspring of slavery, itself the offspring of warfare — has all along, by aiding the differentiation and integration of society, been draining the vitality out of its primeval parent." Chapter xx., "Conditions of Progress," supplements the general formula of the law of progress by contrasting the conditions under which progress takes place with the conditions which determine stagnation or retrogression in the social order. Fiske here lays great stress upon the view that the working of natural selection amongst primitive communities tended, from the start, to favour, in the more progressive communities, that obedience, conservatism, and

unity which have enabled these more progressive types of mankind to dominate the unprogressive, or to destroy the latter when the two types have come into conflict. He then points out the strongly contrasting fact of the importance of prominent individuals in determining the transition to higher civilized communities in the more fortunate cases. The selective value of the community spirit, in case of the stronger social types of mankind, can by itself only explain how, through conquest, social "aggregates of the first order," such as those of "Egypt, Assyria, China, Mexico, and Peru," come to be formed. But in such communities as these, individual initiative is suppressed, and hence progress is stopped at a certain point. Now there seems to be a great difficulty in getting beyond this point, since the very conditions that, in more primitive societies, lead to a strict enforcement of uniformity of belief and practice, seem so far to be necessary for the success of the stronger community in its struggle with others. Yet, on the other hand, only where individuality is encouraged can there be developed, as a later consequence of such individuality, that "flexibility of mind" which made the Greeks for a time so potent, and which now gives to the civilized European stocks their predominance. Fiske decides, on the whole,

however, that the appearance of "a modicum of flexibility" and of individual freedom was a sort of spontaneous variation of certain social stocks that had been subject to very heterogeneous physical and social fortunes. Such were the stocks from which the modern Europeans sprang, — the product of conditions of fierce competition and of restless wandering. "Continual change of foes to be overcome, and of natural obstacles to be surmounted, must have given the advantage, at last, to those tribes which had gained enough uniformity to insure concerted action, without sacrificing their versatility of mind in the process." Thus an essentially Darwinian type of explanation of the appearance of stocks mobile enough to encourage individuality, but conservative enough to unite for warfare, constitutes Fiske's contribution to the question as to how the progressive stocks can have originated. The essential condition of social progress is thus one which tends "to encourage individuality without weakening concentration." "Hence the peculiarly plastic consistency — the flexibility combined with toughness — of West-Aryan civilization."

These reflections are very characteristic of Fiske. They are meanwhile conceived in a Darwinian, rather than in any strictly Spencerian spirit. They involve the admission that what

Spencer calls "direct equilibration" does not, of itself, suffice to explain the phenomena of higher social progress, and that "indirect equilibration" (i. e. progress through variation and selection) must be needed to give the social process its direction upwards beyond a certain point. Meanwhile, the stress laid upon the need of *strong individualities* for the attainment of socially progressive conditions is again characteristic of Fiske's personal interest in the problems of history. To the end of his career as a historian, he remained strongly disposed to recognize the significance of great men. In 1880, in a paper entitled "Sociology and Hero-Worship,"[1] Fiske, undertaking to answer Professor James's article in the "Atlantic Monthly" for October, 1880, on "Great Men, Great Thoughts, and the Environment," insists that the true consequence of the Spencerian sociological doctrines does not, in his own opinion, demand either a denial, or even neglect of the significance of great men as factors in social evolution, and he especially refers to the present chapter as representing how he himself, a Spencerian, reads the implications of his master's doctrine. One may be disposed to doubt how far Fiske, in the article in question, succeeds in his apology for Spencer as against James, but there can be no

[1] *Excursions of an Evolutionist*, chap. vi.

doubt that Fiske himself was always disposed to do justice to the historical influence of individuality. This chapter xx. is therefore an important expression of Fiske's personal judgment of issues that were, for him, always prominent.

25. Chapter xxi., "Genesis of Man, Intellectually," brings Fiske again nearer to the expository attitude. Only now he is once more dealing with a problem common to all the evolutionists, and the most important matter that appears in the chapter, bearing upon the solution of the problem defined in the title, is derived from Wallace rather than from Spencer. The evolution of man depended upon the process of natural selection in which power of brain was preferred to strength of muscle, and to other physical advantages. This power of brain was itself due at each step to variation, as well as to direct adaptation. In dealing with the problem, Fiske accordingly emphasizes the "Darwinian factor" of evolution. What momentous consequences for man's moral evolution, and for Fiske's own later teleological view of the evolutionary processs, our author founded upon these considerations of Wallace, we shall hereafter see.

II

FISKE'S CONTRIBUTION TO THE ETHICAL AND RELIGIOUS PROBLEMS IN THE "COSMIC PHILOSOPHY"

With chapter xxii., on "Genesis of Man, Morally," we pass to a decidedly more independent and original discussion than any of those that have preceded in the course of these volumes. The chapter opens, indeed, very much as if it were to be confined to the form of development of moral principles usual in statements of utilitarian hedonism. But it soon appears that Fiske has other interests in the discussion. It is true that for him, as for other evolutionists, the ultimate warrant for ethical distinctions must be closely related to the pleasure-producing tendencies of good action and the pain-producing tendencies of evil action. It is also true that the biological basis upon which the moral consciousness grows must be that "adjustment of an organism to its environment" of which pleasure and pain give such important symptoms. It is still further true that the evolution of the moral consciousness must be, for Fiske, correlated with that improvement in the structure and functions of the brain which he has discussed in the pre-

vious chapter. But all these considerations are in Fiske's mind subordinate to the question, How did the social functions of primitive man arise, and how did they favour an ethical tendency? The problem of the origin of morality is thus for him identical with the problem of the origin of society. Now we have already seen, in connection with Fiske's general view of the later stages of the social evolution, that the social evolution of any period of humanity involves social integration or consolidation, and the development of such motives as tend to keep the community together. But we now come to the point where Fiske finds it necessary to try to explain how the earliest communities began to learn the art of living together in definite social relations at all. Gregariousness is common amongst mammals, but how did gregariousness turn into genuine social life? Granted a motive for a beginning of such social life, Fiske then finds it possible to conceive how the original motives of pleasure and pain became differentiated into higher moral motives through the workings of sympathy; and on this basis a transition to the usual deduction of hedonistic utilitarianism seems to him comparatively easy. But the central problem is, How a being who was not yet sufficiently gregarious to have become sympathetic, should

for the first time acquire not only vaguely gregarious habits, but a tendency to live in definite social relations with his kind, and begin to nourish the sympathetic impulses upon which the later moral consciousness is based. When Fiske wrote this chapter, efforts had already been made by evolutionists to suggest something towards a solution of this problem. Fiske mentions some of these efforts. That the weaknesses of primitive man should make sociality advantageous had been already suggested by Darwin. But since the very explanation of the origin of this physical weakness of man depended, as we have seen, upon the hypothesis that natural selection had preferred skill of brain to strength of body (because, as Fiske states, "the superior sagacity even of the lowest savage makes him quite a formidable antagonist to animals much more powerful than himself"), it seems inexplicable that this very quality which had been selected because it was associated with sagacity, and was accordingly an advantage, should prove so disadvantageous as to need the development of a new tendency to make its own presence supportable. Fiske sees this difficulty. He also sees that primitive man was not a mild creature, who resorted to the social life because of the gentleness so often associated with weakness. Our author accordingly holds

that we must look elsewhere for the definition of the process by which the transition here in question was effected. The ingenious suggestion that hereupon occurred to Fiske is so characteristic of his personality, and has been so freely discussed in his later writings, mentioned by his critics, and commented upon by popular writers, that no extended account of it is here necessary. Fiske is so much his own best expositor, that with regard to this, his most notable contribution to evolutionary theory, the reader may well be left, for the most part, to consult the author.[1]

[1] The theory here in question is restated in *Excursions of an Evolutionist*, chapter xii., under the title "The Meaning of Infancy." The genesis and the relationships of the theory, in Fiske's own mind, form the topic of his address on "The Part Played by Infancy in the Evolution of Man" (in *A Century of Science*, chap. iv.). See, also, "The Cosmic Roots of Love and Sacrifice" (in *Through Nature to God*), chaps. vi. vii. and viii.; *The Destiny of Man*, chaps. vi. and ix.; *The Idea of God*, chap. xiv. The theory is briefly mentioned, also, in a passage of *Life Everlasting*, Fiske's posthumously published Ingersoll Lecture. The theory of Fiske is spoken of by Giddings as having been "generally accepted," and seems to have been cordially greeted from the outset by students of evolution generally; cf. what Fiske himself says in the "Dedicatory Epistle" to *A Century of Science*. See also, for example, the review of the *Cosmic Philosophy* in the *Popular Science Monthly* for January, 1875. Spencer views Fiske's theory as having probably de-

It suffices for our present purpose to say that Fiske connects the discussion of the importance of the development of the brain (a matter to which Wallace, as we have seen, had already called his attention) with the well-known consideration that the human brain goes through the most important stages of its development after birth. He points out that these two facts not only are connected, but needs must be. There is no opportunity to give a brain so complex as that of man its fair chance for development, without a prolonged period of infancy. If natural selection came to prefer brain development to all the other powers of the anthropoid ancestor of man, then this preference necessarily entailed the physiological consequence of a gradually but steadily prolonged period of infancy. It also entailed, by a corresponding selection of those members of the pre-human stock whose parents took good care of them during this infancy, a gradual growth of parental interests. The consequence was, according to Fiske's hypothesis, the disposition of parents to remain longer with the care of their offspring upon their minds. In conse-

fined a "coöperating factor in social evolution" (*Principles of Sociology*, vol. i. Part III. chap. ii. § 267, at the end). Giddings criticises Fiske's view negatively in his *Principles of Sociology*, pp. 229 sqq.

quence, before elder offspring were mature, and free from parental care, the younger offspring would be present to give new interest to the life of what now tended to resemble a primitive family or a group of families. That very irregularity of the earliest human or sexual relationships which Fiske's theory meanwhile presupposes, would lead, upon the basis of a very simple tendency towards gregariousness, to the formation of hordes, in which the many young must have constituted a certain tie that held all the interested parents more or less together. Now the care of the offspring during this prolonged period of infancy would itself be a training in sympathetic feelings. These latter would gradually extend themselves to the various members of the primitive horde thus formed. The result would be a social group, that on a higher level would become, for primitive man, a clan, with a consciousness of its family ties. The selective value of clannishness, when once it had thus originated, would lead to the extension of the clan in size, to the knitting together of its various relations, and to the development of secondary social virtues such as had to do with the preservation of the clan in its conflict, both with nature and with other clans. The social relations thus resulting would react, both through

"direct equilibration" (that is, through the training of new habits) and through "indirect equilibration" (that is, through further natural selection of the most intelligent social groups), upon the development of the human brain. The more highly developed brain would then become still more capable of those "representative" and "re-representative feelings," upon which the higher morality, in the Spencerian view, depends.

(27) Fiske connects with this speculation a consideration of the nature of the various moral motives which would develop upon the supposed basis. He shows that (as Spencer also insists) they are to be distinguished from anything like a direct perception, on the part of those who are concerned, of the social utility of moral actions. Primitive morality is not due to the conscious discovery that individual happiness depends upon social conformity. Nor is the extension of social sympathy, which marks the growth of higher morality in the race, a product of an intellectual process whereby man reasons that the pleasures and pains of others are to him as if they were his own. Parental affection, the beginning of the process, is blind. It is due in great part to the selective value of parental care. Its extension from the early stages of infancy to

the later periods of the life of the offspring, is due in part to association. The extension of a similar sympathetic concern to the rest of the members of a clan depends upon further associative processes. If the clan is once formed, its members become dependent upon one another, and feel direct interests accordingly. The differentiation of the sterner virtues from the more sympathetic, while it is not very extensively discussed by Fiske anywhere, is indicated in some passages in a fashion used also by Spencer. The successful clan must take pleasure in the courageous and faithful member, and must show approval of his fidelity; while the unfaithful or cowardly member is beaten or is killed. The memory of such social experiences leads to instinctive preferences and aversions, which all tend towards harmony with the interests of the clan. Thus the individual does not by calculation discover that it must be to his advantage to live in a clan and consequently to sacrifice himself, in some respects, for it. On the contrary he tends, because he is a member of a clan, to become instinctively faithful to it, — at least in some rude measure, — and so to prefer not only deeds which are directly sympathetic, but also virtuous actions which are not all of them directly reducible to sympathetic motives. Yet

the origin of these virtuous acts is in social sympathy, and this social sympathy goes back for its own source to parental affection. Fiske follows the extension of such virtues to wider and wider social relationships, as a process that must run parallel to increasing social integration. He is thus able to indicate how in historical times the sentiment of humanity can grow to the level of a sense of duty to all mankind.

With the criticism of the doctrine we have here, as elsewhere, nothing to do. Its significance as an expression of Fiske's keen eye for the importance of the more naïve and childlike side of human nature is very noteworthy. There can be no doubt that the essentially childlike nature of the man himself, a nature that he preserved in the main intact despite all his learning and throughout his long and thoughtful career, was responsible for the tendency of these speculations. In this portion of the work, then, not the disciple of Spencer speaks nearly so much as the man Fiske himself.

28. The following chapters belonging to the third part, the "Corollaries" of the "Cosmic Philosophy," deal directly with the problems of religion, and with other problems closely connected with religious issues. When we re-

view, in the light of the foregoing analysis, the position of Fiske, in so far as we have yet had occasion to indicate it, we are led at once to see that there may well be a conflict in his mind — a conflict of which he himself was not clearly conscious — between *two different kinds of motives* that governed him in dealing with these problems. On the whole, to be sure, Fiske has thus far appeared in his treatment of ultimate problems as a faithful disciple of Spencer. He has emphasized the essentially inscrutable character of the Ultimate Reality. He has plainly pointed out what he regards as the vanity of "anthropomorphism." He has indicated that we have no right whatever to interpret this ultimate reality in terms of our own consciousness. Yet, on the other hand, he has shown already a concern which has indeed in his mind a decidedly theoretical foundation, but which has also a strong personal interest for him. This concern is in maintaining, with much greater definiteness than Spencer, that the mental and material worlds form two classes of phenomena, between which there is an "impassable gulf." The cordial acceptance of the Berkeleyan analysis of the phenomenal concept of matter, the resulting assertion that physical energy cannot conceivably be transformed into mental energy, — these tendencies

have indicated that Fiske has thoughts of his own which are not wholly identical with the thoughts about religion, and about our relations to ultimate reality generally, with which Spencer opens the "First Principles." It is meanwhile obvious that Fiske is not at all clearly conscious of any conflict of opinion whatever between Spencer's views and his own. Moreover, in the more polemical parts of his discussion, we have frequently found him using, against the partisans of current religious tradition, expressions which seem to indicate a sense that in philosophy the former things have passed away, and all things religious and metaphysical have become new. But we may well suspect whether in Fiske's case this is the whole story. One or two passages which we have passed over in the foregoing exposition indicate, from time to time, to the watchful reader, a view about the nature of religion, as what Fiske calls "an emotional attitude," towards the ultimate reality, — a view that faintly suggests already a consciousness such as Schleiermacher emphasized in his "Reden ueber die Religion." We turn with interest, therefore, to those chapters in which Fiske announces that he will deal with the relation of the cosmic philosophy to the problems "concerning God and the Soul."

In chapter i. of Part III., "The Question Restated," Fiske declares that these "questions concerning God and the Soul, which the Positive philosophy simply set aside as unworthy the attention of scientific thinkers, nevertheless cannot be ignored by any philosophy which seeks to bring about a harmony between human knowledge and human aspiration." Fiske hereupon confesses himself "unable to settle such questions as scientific questions are settled." He proposes, however, to "go as far as is possible without deserting the objective method, and indicate the position which we occupy with reference to them." Hereupon, decidedly altering at once the phraseology of his master, Fiske declares that the power which is manifested in the universe is "a Divine Power," and that this is intended to be a "Theistic conclusion." He connects with this assertion the remark that since "at every fitting opportunity" he has "declared that the phenomena of mind can in no wise be explained as movements of matter, while at the same time a law of evolution expressed in terms of matter and motion is found to include the order of sequence of psychical phenomena," he must "attempt to clear away the difficulties which to many minds no doubt cluster around the seeming paradox." He then points out that, as he has already indicated in connection

with his discussion of ethics, "beside the sphere to be assigned to morality, there is a wider sphere to be assigned to religion." He must, he tells us, attempt to connect this assertion with the rest of his principles. And so in the later chapters Fiske proceeds to attack these questions both negatively and positively.

29. The negative part of this task is not difficult to summarize. Fiske here states his case with something of that polemic vigour which we have previously noted in case of his chapter on the Freedom of the Will, and in case of his criticism of Comte. This polemic vigour of expression is a trait of some of Fiske's early essays, which went greatly into the background in his later work, appearing only in a few of his maturer critical papers. It stands in a rather curious contrast to his wide intellectual hospitality, to the great geniality of his mind, and to the very tendencies which express themselves, even in the "Cosmic Philosophy," on the positive side of his religious teaching. But at all events, as to the main matter at issue, Fiske's Theism, as we learn in his second chapter, is not to be an "anthropomorphic Theism." The "teleological theory" of the universe is "useless from a scientific point of view." It is "a perishable hypothesis, born of primeval habits of thought." The more we know about nature

the less the search for final causes seems to be of use to us. The cosmic conception of deity, "being planted in the region of the Unknowable, has no such precarious tenure, and all that the progress of discovery can do is to enlarge and strengthen it. But the anthropomorphic conception, lodged in that ever diminishing area of the Knowable which is to-day unknown, is driven from outpost to outpost and robbed of some part of its jurisdiction by every advance of science." "To represent the Deity as intelligent" is (by virtue of the Spencerian definition of intelligence as an adjustment of inner to outer relations) "to surround Deity with an environment, and thus to destroy its infinity and its self-existence." "When we speak of 'intelligence,' we either mean nothing at all, or we mean that which we know as intelligence. But that which we know as intelligence implies a circumscribed and limited form of Being adapting its internal processes to other processes going on beyond its limits." It is of course impossible positively to disprove the presence of conscious design in the natural universe. But all that we know of the facts is against the teleological hypothesis. The presence of the appearance of design in nature is sufficiently explained as due to the fact that our intelligence, by virtue of its evolution, has be-

come adjusted to the world, and hence in turn is disposed to interpret the world as adjusted to itself. "It is not the intelligence which has made the environment, but it is the environment which has moulded the intelligence. In the mint of nature, the coin Mind has been stamped; and theology, perceiving the likeness of the die to its impression, has unwittingly inverted the causal relation of the two, making Mind, archetypal and self-existent, to be the die." Moreover, "Personality and infinity are terms expressive of ideas which are mutually incompatible." Hence, "an anthropomorphic God cannot be conceived as an infinite God." To those who have formed scientific habits of mind, and who have been led once to conceive of the all-sustaining Power of Spencer, — to such persons "the conception of a presiding anthropomorphic Will is a gross and painful conception." And so the "Intelligent Will postulated by the modern theologians" must in time share "the fate of the earlier and still more imperfect symbols whereby finite man has vainly tried to realize that which must ever transcend his powers of conception." The case thus made out, if taken by itself, would seem to be sufficiently negative to make very questionable why one should still call the doctrine thus defined "Theistic."

30. In chapter iii., on "Cosmic Theism," Fiske begins by admitting that the conclusions thus reached "would be very unsatisfactory if we were obliged to rest in them as final." A "positive attitude" is needful to satisfy the human mind. This positive attitude is first suggested by the fact that the inscrutable Power which we so far find as the basis of all Reality is sharply distinguishable from the whole realm of phenomena. Although known through its manifestations only, it is known to be in itself something beyond these manifestations, and is inscrutable only because it is thus beyond. But now, as Fiske insists, here for the time returning decidedly to the position of Spencer in the "First Principles," "what men have worshipped from the earliest times has been not the Known, but the Unknown." "Worship is ever the dark side of the shield, of which knowledge is the bright side." Meanwhile, it is to be noted that we do not say that the World, that is, the sum total of phenomena, is for us this Ultimate Reality, since for us, in Fiske's opinion, the Unknowable lies wholly *beyond* this world of phenomena. Hence, as Fiske insists, the view here in question is not Atheism, because Atheism looks for nothing beyond the world itself, viewed as a sum total of data. Nor is the doctrine Pantheism, for Pantheism identifies the

world of phenomena with the Deity. We, however, must in no wise identify "the Power with its manifestations." "While the universe is the manifestation of Deity, yet is Deity something more than the universe." There is to be added the consideration that for the "Cosmist" the Unknowable manifests itself in a world of Law. In the mind of the "Cosmist" "Divine action" is therefore identified with *orderly* action. The question about the right positive attitude towards the Deity thus comes to involve the question whether man is to be taken as the measure of the highest form of being, "whether the creature is to be taken as the measure of the Creator." And the answer of the "Cosmist" is that the Unknowable, as *beyond* the world, and as the source of Order, is something immeasurably higher than the creature.

The question how far Fiske was satisfied in his own mind that the view indicated involved already a sufficiently positive attitude towards the Unknowable, seems, in the light of the subsequent developments, somewhat doubtful. The attitude thus far defined seems to be positive only (1) in so far as Fiske asserts that an ultimate mystery is the natural object of the emotion of worship; and (2) in so far as the Unknowable, being free from anthropomorphic

taint, is *free from limitation*, and is therefore more worthy of worship than a limited object. The added consideration, that the Unknowable is the source of law, serves indeed to give the conception something of the dignity of orderliness. Yet Fiske now proceeds, in chapter iv., on "Matter and Spirit," to a consideration which at first seemed to take him into a decidedly different region of thought, but which proved to be erelong related to the estimate of our religious attitude, and to insure a needed supplement to our way of viewing the Unknowable.

(31) The "Cosmic Philosophy" is in any case, as we now are reminded, not materialistic. Fiske opens the chapter by repudiating with considerable vigour the general imputation suggested by that term. He passes hereupon to a more careful examination of the very matter which we earlier found him discussing (see § 17 of this Introduction), namely, the question about the relations of material and mental energies. The argument here developed at considerable length remains characteristic of Fiske's thought throughout his career, and, as we have said, differentiates him from Spencer. While the latter, even in his latest utterances, seems disposed to regard physical and mental processes as capable of direct causal relations to

one another, and so as furnishing in their mutual relations examples of the transformation, if not of the measurable equivalence of forces, Fiske, in the most definite fashion, maintains that in all the changes of the nervous system physical energies are inevitably transformed into physical energies *and nothing else.* He maintains that a transformation of physical into mental energy, or *vice versa*, is simply inconceivable. He does this upon a basis of the very fact that what we mean by matter is wholly phenomenal, and that the way in which we come to the knowledge of this phenomenon excludes the possibility of conceiving it as the source of mental energies. In consequence of this, it is wholly impossible to attempt a materialistic interpretation of the origin of mental phenomena, or a materialistic interpretation of the theory of the evolutionary process. Moreover, since we symbolize the Unknowable, so far as its manifestations force us to speak of it, in terms of our experience, and since our experience (as Berkeley's analysis showed) is primarily of the psychical and only indirectly of the material, we reach the result that: "In so far as the exigencies of finite thinking require us to symbolize the infinite Power manifested in the world of phenomena, we are clearly bound to symbolize it as quasi-psychical rather than as quasi-material."

For it is indeed impossible, as Spencer himself maintains in the passage which Fiske quotes from the "Psychology," to *conceive* the transformation of force into feeling. But on the other hand, it *is* conceivable that the units of which the material world is made may be, when viewed apart from our consciousness, themselves of the nature of feeling. Spencer indeed maintains, and Fiske, so far in his philosophical development, admits, that thus to conceive matter would in no sense make the *ultimate* reality less inscrutable. But Fiske reasons upon this very basis that we can come nearer, for our own purposes, to defining the ultimate reality by symbolically conceiving it as mental than by attempting to conceive it as material. "Provided we bear in mind the symbolic character of our words, we may say that 'God is Spirit,' though we may not say, in the materialistic sense, that 'God is Force.'" To be sure, we do not thus admit the right to clothe our conception of the Deity with "definable psychical attributes." We must avoid as much as ever using the words "Intelligence" and "Volition" with regard to the Deity; for these are names of "circumscribed modes of psychical activity in man and some other animals." We have nevertheless won by these considerations a certain addition to our "positive attitude." And Fiske now feels himself

authorized to proceed to his final definition of this religious attitude itself.

32. Chapter v., entitled "Religion as Adjustment," undertakes this final definition in somewhat practical terms, by recurring to what Fiske has formerly pointed out regarding that generalization towards which our ethical consciousness tends. Regarded in its original social bearings, the moral consciousness, as we have seen, has to do with the adjustment of the individual life to the life of the community. But throughout the development of the ethical consciousness, there has been a constantly increasing adjustment of the individual will to a *larger and larger environment*. In its most generalized form the moral consciousness seems to Fiske to counsel the greatest possible "fulness of life," for the individual, for the social order which he serves, and for humanity generally. But fulness of life means perfect adjustment to the whole of reality. When, however, the life which the individual serves is conceived as itself a part of the manifestation of the one Unknowable Power, and when one also conceives, as we have thus learned to do, that the Unknowable Power is quasi-psychical, and also that just because of its universality it is immeasurably above our limitations, — then, in the very effort to define the ideal of a "perfect adjustment," one is led to

that distinctly emotional attitude towards the Unknowable which Fiske regards in this chapter as of immense importance, and as giving a "sanction" to our moral ideal. To live well is to express, as best we can, our aim to attain a perfection which has been suggested to us by the working of the Unknowable Power. This very ideal of a perfect adjustment has the Unknowable as its object. And our search for the ideal is a tendency towards a completeness of Being which the Unknowable Power, immeasurably above ourselves, already somehow mysteriously possesses, and so there arises in us a religious feeling, which depends upon regarding one's life as lived in obedience to the Inscrutable Power.

By way of further defence of this interpretation of the religious attitude, Fiske points out that relations to a Power which is manifested through inexorable laws of nature are morally more wholesome than relations to a Power which can be cajoled or coerced, by means of devices such as are employed towards an anthropomorphic Deity, into forgiveness of our transgressions. He also points out, by the way, what is, once more, a *negative* feature of the situation, namely, the fact that, with the complete deanthropomorphizing of our view of the Deity, all need of undertaking to explain the "mystery

of pain," or of evil, vanishes. Of the workings of an unknowable and inscrutable Power it is obviously not rational to complain. Nor need we be troubled to try to justify what we are absolutely certain not to be able in any sense to understand. Thus our positive attitude towards the Unknowable is relieved of the entanglements which a Theodicy would entail. We know that the Unknowable is immeasurably *above* us, and that it is more universally significant for us than any phenomenal object can be, since we absolutely depend upon it for all that we are. Accordingly, when we finally generalize our ethical instincts and seek for fulness of life in the highest sense, we feel (if one may borrow Schleiermacher's phrase) a Sense of Dependence upon the Unknowable, which gives to our search for this fulness of life a certain association with a feeling of reverence for the Absolute. And this is religion, — something which the mere phenomena in their endless variety can neither give nor take away. Such is Fiske's closing assertion of his position so far as the present book goes.

33. In the final chapter of the work, entitled "The Critical Attitude of Philosophy," Fiske discusses in a decidedly independent way the spirit which the "Cosmic Philosophy" cultivates towards the education of the public,

towards social reforms generally, and in particular towards the changes of religious opinion. Here Fiske makes use of thoughts which remained with him to the end, and which coloured all his later treatment of historical problems. The great lesson of the process of evolution is the *Continuity* of all progress, in so far as progress occurs at all. Cataclysms are not to be expected. Progress in thought does not occur by sudden changes of opinion. Progress in morality is a matter of extremely slow growth. Progress in social reforms is not to be attained by revolutions. The evolutionist seeks to make no sudden converts. He would not if he could deprive men of such faiths as are now essential to them in their present stage of growth. He is no radical reformer. He appeals only to those who are prepared by long training to appreciate the significance of science and the seriousness of philosophy. Above all, he is patient. He hopes for gradual improvement without discontinuity of process. He does not seek to make the world over at a stroke. He appreciates the value of individual effort, but he knows that individual effort is worthless apart from organic relation to the inevitably slow processes of social growth.

III

THE LATER DEVELOPMENT OF THE PROBLEMS OF THE "COSMIC PHILOSOPHY"

34. With the publication of the "Cosmic Philosophy" Fiske may be said to enter upon a new period of his career. For some years he was now Assistant Librarian of Harvard University. Thereafter, in 1879, began his activity as historian, — an activity principally devoted to American history. Yet to the end he retained his interest in the problems of the "Cosmic Philosophy." Within a very short time after the appearance of the book, one finds indications that, with regard to the very issues which we have found him discussing in the later chapters of the work, his views were undergoing further development. We have seen, at the opening of this Introduction, that when Fiske himself looked back, after traversing for a considerable distance these new paths of thought, he was rather displeased to find that others interpreted his growth as involving any *essential* change of attitude. Accordingly, in the before cited preface to his book on "The Idea of God," he was fain to call attention to the fact that in the "Cosmic Philosophy" he

had already indicated the very features of doctrine which he later made increasingly prominent. His own citations, in this connection, from the "Cosmic Philosophy" point out passages in the closing chapters of the book where he had given utterance to what proved to be germinal thoughts. We may well emphasize at just this place what these thoughts were. We have not had occasion to make so much of them in our exposition as Fiske himself later came to do — for as a fact, it is doubtful whether any reader who had before him the "Cosmic Philosophy" only would be able of himself to see the passages in question in the perspective in which Fiske later viewed them. In the chapter (Part III., chapter ii.) on "Anthropomorphic Theism" there occurs one sentence in which Fiske, while using a sort of indirect discourse, refers to "the wondrous process of evolution as itself the working out of a mighty teleology, of which our finite understandings can fathom but the scantiest rudiments." This sentence, in its original context, can hardly have impressed very deeply any early reader of Fiske's book. It occurs side by side with the assertion that no *anthropomorphic* teleology can be tolerated, either as a scientific or as a philosophical hypothesis. The teleology here in question must therefore ap-

parently be, like the "quasi-psychical" character of the Inscrutable Power, something that we can assert only by sacrificing every effort to give it a demonstrable or comprehensible definition. In the text of the "Cosmic Philosophy," as we remember, there also occurs the expression, which in its own place in our account we have already cited, the thesis that we *may* say, *if* we bear in mind the symbolic character of the word, that "God is Spirit." The words concerning the "quasi-psychical" character of the Inscrutable Power constitute still another of these records of germinal thought. And here, too, the thought was destined to bear, in Fiske's mind, a fruit which the reader of the "Cosmic Philosophy" would hardly have anticipated. As Fiske looked back upon these expressions, from the point of view which he had already reached when he wrote in 1885 the Preface to "The Idea of God," they seemed to him, however, to convey a decidedly and explicitly positive tendency which goes beyond what we have yet been able to attribute to him. He admitted, however, in the Preface in question, that at the time when he wrote the "Cosmic Philosophy" he was himself not fully conscious of all that these thoughts implied.

35. Ten years later, in his speech at the dinner given to him by Mr. John Spencer Clark

in New York (May 13, 1895), Fiske gave the most considerable autobiographical statement that was published during his life regarding the steps whereby he had gradually been led to a clearer consciousness of his later conclusions. This process, however, was not even yet wholly completed, for the book entitled "Through Nature to God" expresses a still further elaboration of the very tendencies that Fiske describes in his just-cited speech. When one surveys, however, the whole outcome of the growth thus indicated, he gets the following most general view of the motives that determined Fiske's later thoughts about religious topics: —

(1) First and most critical amongst the considerations that came to govern Fiske's opinions regarding the significance of the doctrine of evolution, was the reflection that, however far the process of "deanthropomorphization" might go, it was still necessary for the evolutionist to conceive the whole process as expressing, in phenomenal terms, some kind of Meaning. And the ground for this necessity was especially suggested to him by the fact that the highest outcome of evolution, as known to us, actually has an intelligible meaning. For this highest outcome is the intellectual and moral nature of man. The situation is this, — In

studying the phenomenal process of evolution in nature we get, first, the impression (Fiske is accustomed to say the almost or quite convincing proof) that this process possesses in the strictest sense Unity, and constitutes a single Whole. But what this whole means we of course cannot see so long as we merely observe the extra-human phenomena. When we come to consider, however, the case of man, we do find a meaning in the process. The close relation of this discoverable meaning to the natural phenomena themselves is suggested to Fiske by the very considerations that he had embodied in his theory of the significance of infancy. The wiliness of nature in teaching man the highest morality through devices which appeal to his most fundamental and in some respects most physical passions, — this later seemed to him a proof that the natural process of evolution had about itself something closely akin to higher meanings, even when the phenomena, taken as they first presented themselves, appeared most remote from anything ethically significant. In the case of primitive man, nature hid devices of profoundly spiritual significance beneath the appearance of an appeal to merely elemental desires. Seeming to intend only the preservation of the stock, nature furnished the race with the brain that was to make man's aspira-

tions possible, and with the helpless and long needy infants that were to teach him the road to virtue. But now, if the evolutionary process is One, if the inscrutable Power is not a collection of many various beings, but is a single Being, then to find meaning anywhere is to suggest strongly that one has found at least a hint of the meaning that must be everywhere. Fiske tells us, in the Preface to the "Idea of God," that when this conception first dawned upon him, it came to him with all the force of a "revelation." In any case, evolution is henceforth for him a positively teleological process. And because, in the case of man, one can most clearly read its meaning, the outcome of the theory of evolution is to make man once more central in significance amongst the phenomena of the natural world.

(2) The second of the considerations that Fiske found potent in his later thought is closely connected with this first. If the process of evolution has a meaning, and if its meaning involves the creation, through this process, of an ethical being, then for reasons which have often been discussed by those concerned with the problem of immortality, the defeat of the aspirations of this ethical being through death would seem to be opposed to the attainment of the meaning in question. Here is an argument in

favour of a reconciliation of philosophy with at least a rational hope of immortality. This reconciliation, first somewhat briefly stated as the outcome of a summary of the meaning of evolution, in the "Destiny of Man," gradually grew more important to Fiske as the years went on, and was especially emphasized in the last production of his life, the Ingersoll Lecture on Immortality. Yet by this time this consideration had become connected in Fiske's mind with still another thought, which also seemed to him, when it at first came to his mind, decidedly novel and significant.

(3) This third motive of Fiske's latest expressions bearing on the problem of religion was an extension into the realm that had been originally regarded as unknowable,—an extension, I say, of the concept of Adjustment, of which Fiske had already made use in his final definition of religion in the "Cosmic Philosophy." He had there spoken of religion as an aspiration after a complete adjustment to the one inscrutable Power. How this adjustment was to be accomplished, except merely in the form of this pious wish itself, was not very obvious, so long as no possible way could be defined of reaching any sort of rational conviction with regard to what the Inscrutable might mean by its doings. But in connection with Fiske's growing tend-

ency to conceive that the meaning of evolution was, at least in case of man's evolution, somewhat legible, there grew upon him also the disposition to regard the historical religions of humanity, despite their crudenesses and their false anthropomorphism, as involving actual processes of adjustment, possessing positive value.

When religion appeared amongst men, it was a new function, resembling in its novelty the first appearance of the function of vision in the lowest animals. Just as vision in its rude beginnings in no wise suggested the power of the astronomer to examine the spectra of remote stars, while yet, even in the first pigment-spots that responded to light, there was a beginning of the very function that was afterward to be so far-reaching, just so, as Fiske found himself disposed to reason, religion, even in its primitive forms, was the first stage of a functional process that must be regarded as an adjustment tending to lead to something higher. But by hypothesis religion was always an attempted adjustment to the ultimate reality. Hence, as it now seemed to our evolutionist, this adjustment must have had from the first a positive meaning much more genuine than, in his former discussion, he had been disposed to recognize. Just as he learned, in all these later reflections, to estimate the process of evolution rather by its outcome

than by means of any purely abstract formula to which all its stages conform, so, in case of religion, he came to be increasingly disposed to estimate its significance, as a process of adjustment, in terms of its highest outcome; that is, in terms of the most elevated positive conceptions that men had formed of the significance of their spiritual relations to the Unseen. And in consequence Fiske no longer followed the distinctively Spencerian method of defining the essence of religion in terms of an abstract formula which expressed what was common to all religions, high or low.

To be sure, Fiske never enters into any polemic against Spencer himself, even in his latest expressions. But precisely that feature of the Spencerian estimate of religion which some of Spencer's opponents had most emphasized constitutes the very aspect of the doctrine maintained in the "Cosmic Philosophy" which Fiske, in his latest period, simply abandons. Spencer's opponents had often objected to his "reconciliation of science and religion," that in making the essence of religion identical with the element common to all religions, Spencer had deprived religion of every useful positive character. In the "Cosmic Philosophy" Fiske, despite the indications which we have seen of other interests, seems, on the whole, to side with Spen-

cer, and makes the essence of religious emotion very largely consist in the Sense of Mystery. But the sense of mystery does not characterize positive adjustments, in so far as they are positive. The earliest possessors of the sensitive pigment-spots responded to light, not in so far as it was nothing in particular, nor yet in so far as it was a mere mystery, but in so far as it meant something to them,— meant, namely, the vitally important difference between shadow and brightness, a difference by means of which they escaped from foes, and found food and comfort. And the function of responding to the light is to be estimated, not in terms of that vagueness which is common to the highest and the lowest creatures that can see, but in terms of that higher perfection of discrimination towards which the whole evolutionary process has been tending. Just so, for the later Fiske, the religious function ought to be interpreted not in terms of that dimness of mind which recurs whenever we lapse into a sense of the mystery of things, but in terms of that positive interest which makes our highest aspirations at least in some respect definite, and at least in some respect disposed to assert themselves in terms of a differentiated conception of God.

In consequence of this change of attitude, Fiske distinctly asserts in his latest period that

if evolution means anything, then this function of religious adjustment must throw an actual light, dim though that light may still be, upon our concrete relations to the unknown. While he still insists, to the end, that the truth of our religious opinions is incapable of scientific demonstration, he does also insist upon what the original Spencerian argument would seem to have excluded altogether, namely, the probability that our fundamental religious hopes are well founded, and that we have been, throughout the religious development of humanity, in actual relation to an unseen Power that deserves, in a much more positive sense than Fiske had originally recognized, the name Spiritual.

(4) In consequence of all these considerations, Fiske is finally disposed throughout his later period to the assertion of an "Idea of God" which comes much nearer to being what historical usage would call theistic than had been the Deity of which the "Cosmic Philosophy" spoke. While the "Cosmic Philosophy" had permitted us (by way of employing purely symbolic terms with a full consciousness of their utter inadequacy) to define the inscrutable reality as "quasi-psychical," just in order to distinguish our views from Materialism, the later writings of Fiske at length declare without hesitation that the religious consciousness requires

us, without detracting from the unity, the universality, and the absoluteness of the Divine Being, to conceive him as "quasi-human." And the requirement thus defined is according to Fiske probably well founded in the nature of things. Although this result is indeed not to be demonstrated, yet, on the other hand, it is distinctly a rational conclusion, the expression of the highest adjustment that we are capable of making to the unseen world.

36. The thoughts thus summarized did not come to Fiske all at once. It is necessary to understand the process of their growth a little more exactly, in case we are to accomplish our purpose of estimating the relation of the "Cosmic Philosophy" to Fiske's later development. The first clear indication of what was going on we get from the book called "The Unseen World," published in 1876. Here we first naturally consider the essay that gives the book its title. The second part of this essay deals with the problem of the possible existence of a spiritual world and of the possible occurrence of an immortality. The essay in question very frankly makes no effort to give positive grounds for a demonstration of such a spiritual world, but it does attempt to show that nothing in science or in philosophy establishes any definite presumption *against* the existence of facts that

correspond to our highest aspirations. If one wonders why Fiske, after all the vigorous polemic that we have found in the "Cosmic Philosophy" against efforts to transcend our hopelessly limited human powers, should still feel interested in defending the thesis that certain definite opinions about a spiritual world might after all be true, we find our author justifying his attitude in words that are decidedly characteristic of his personality, even if they seem in a somewhat singular contrast to his more polemic moods. "We must think," he says, "with the symbols with which experience has furnished us; and when we so think, there does seem to be little that is even intellectually satisfying in the awful picture which science shows us, of giant worlds concentrating out of nebulous vapour, developing with prodigious waste of energy into theatres of all that is grand and sacred in spiritual endeavour, clashing and exploding again into dead vapour-balls, only to renew the same toilful process without end, — a senseless bubble-play of Titan forces, with life, love, and aspiration brought forth only to be extinguished. The human mind, however 'scientific' in its training, must often recoil from the conclusion that this is all; and there are moments when one passionately feels that this cannot be all. On warm June mornings in

green country lanes, with sweet pine-odours wafted in the breeze which sighs through the branches, and cloud shadows flitting over far-off blue mountains, while little birds sing their love-songs, and golden-haired children weave garlands of wild roses ; or when in the solemn twilight we listen to wondrous harmonies of Beethoven and Chopin that stir the heart like voices from an unseen world, — at such times one feels that the profoundest answer which science can give to our questionings is but a superficial answer after all. At these moments, when the world seems fullest of beauty, one feels most strongly that it is but the harbinger of something else, — that the ceaseless play of phenomena is no mere sport of Titans, but an orderly scene, with its reason for existing, its

" ' One far-off divine event
To which the whole creation moves.'

" Difficult as it is to disentangle the elements of reasoning that enter into these complex groups of feeling, one may still see, I think, that it is speculative interest in the world, rather than anxious interest in self, that predominates. The desire for immortality in its lowest phase is merely the outcome of the repugnance we feel toward thinking of the final cessation of vigorous vital activity. Such a feeling is naturally strong with healthy people. But in the

mood which I have above tried to depict, this feeling, or any other which is merely self-regarding, is lost sight of in the feeling which associates a future life with some solution of the burdensome problem of existence. Had we but faith enough to lighten the burden of this problem, the inferior question would perhaps be less absorbing. Could we but know that our present lives are working together toward some good end, — even an end in no wise anthropomorphic, — it would be of less consequence whether we were individually to endure."

I have been led to quote at length this passage, not only for its intrinsic interest in the present context as a document indicative of the transition-stage through which Fiske's mind was now passing, but because I chance to associate it with my own first personal acquaintance with Fiske. In the summer of 1877, when as a student I chanced to be for a few weeks in Cambridge, and to be introduced by Professor James to our author, I met him one evening at his own house in company with Professor Paine. The conversation turned a good deal upon music, and it was in the course of a discussion of Beethoven that Fiske referred to this very passage in "The Unseen World" as expressing his own present attitude, and as a passage of which the music that was at the mo-

ment under discussion reminded him. The contrast between the Fiske of the "Cosmic Philosophy," of whom I already knew something, and the expression of his mind as I then heard it, struck me at once, although I do not remember feeling disposed to interpret the contrast as an inconsistency.

As a fact, there is nothing in the positive assertions of the essay entitled "The Unseen World" which is at all opposed as yet to the theses of the "Cosmic Philosophy." Fiske first defines, in the speculation contained in this essay, "A World made up of Psychical Phenomena." With such a world, he then points out, it would be impossible for beings subject to our present physical conditions to communicate. This world, in strict accordance with the results of his former discussions on matter and mind, he then hypothetically describes as one that need not be discontinuous with our own present psychical phenomena, while it would "be demarcated by an absolute gulf from what we call the material universe." Into such a world, as Fiske points out, it would be possible for our own life somehow to pass at death, without thereby running counter to any law now known regarding the present connection of mental and material phenomena. On the other hand, this supposed psychical world would be utterly beyond our

present ken, and beyond our power of communication, just because of our present material limitations. Such a world would thus make a conception of immortality a definable possibility. Now, as Fiske reasons, there cannot be the slightest scientific evidence accessible to us, in our present state (wherein by hypothesis we know mind only in connection with matter), regarding the actual existence of such a world of pure mind. On the other hand, the possibility of such a world means that immortality also is possible without any inconsistency with our present knowledge. And as Fiske also insists, our present knowledge furnishes no definite "presumption" against the existence of such an unseen world. "The entire absence of testimony does not raise a negative presumption except in cases where testimony is accessible." Consequently the belief in a future life is by such a hypothesis placed beyond the range of scientific criticism, although of course in no wise proved. Fiske also suggests that, in regarding the inscrutable Power as "quasi-psychical," as he has done in the "Cosmic Philosophy," he has suggested a hypothesis about the nature of God which could be made to accord with the foregoing hypothesis of the existence of a purely spiritual world. Both God and the Soul are thus existences against which no scientific

reason that has any positive force can be alleged. Science is simply negative with regard to all such matters; for science is limited to this our present world, where matter and mind run, in case of our own life, parallel one to another. Fiske then suggests that since our aspirations demand, in the way just pointed out, at least the hope of the existence of some such spiritual world, none can take away from us the right to indulge this hope.

37. The collection of essays contained in the book which we are now citing furnishes several other examples of reference to religious problems. We here find ourselves interested in two different statements of the essential nature of religion. One of these statements is contained in the essay on "Nathan the Wise," which was written in 1868, but which, being here published without change, indicates that Fiske saw as yet no reason to change the expression. This passage defines the religious consciousness still in terms of the Sense of Mystery. Genuine religious feeling, as Fiske says, "contemplates the dark side of the shield." Hereupon there follows a brief statement of the negative Spencerianism which we have found emphasized in the "Cosmic Philosophy." Religion is a "restless yearning for something that we know ourselves unable to attain." The other one of our two

statements on the nature of religion occurs in the essay on Draper's "Science and Religion." Here religion is defined in the other and somewhat conflicting sense, which the "Cosmic Philosophy" also exemplifies. "All animals seek for fulness of life; but in civilized man this craving has acquired a moral significance, and has become a spiritual aspiration; and this emotional tendency, more or less strong in the human race, we call religious feeling or religion. Viewed in this light religion is not only something that mankind is never likely to get rid of, but it is incomparably the most noble as well as the most useful attribute of humanity."

In sum, then, we get from this collection of passages an impression that Fiske at this period was tending to emphasize the positive emotional aspiration, rather than the negative sense of mystery, as the essential element of religion, and through an elaboration of hypotheses which could not be proved, but which, as he felt, could be permitted (at least as spiritual exercises), was seeking to give these aspirations an ideal form, an intellectual accompaniment, which would tend to render them definite, even if it could not give them demonstrable warrant.

38. In the "Excursions of an Evolutionist," whose Preface was written in October, 1883, we find the record of the speech at the farewell

dinner given to Herbert Spencer in New York, November 9, 1882. The topic is "Evolution and Religion." Words spoken in the presence of the master himself were not likely to emphasize any nascent divergence of opinion. Fiske very naturally lays stress upon the Power that Spencer has called the Unknowable. His phraseology in speaking of this Power is now somewhat warmer than the customary Spencerian expressions, but is so rather by virtue of the literary allusions employed, and also by virtue of references to a possible teleology, than through any very precise formulations. The assertion of "the infinite and eternal Power" (the Spencerian assertion) is identified "with the assertion of an eternal Power, not ourselves, that forms the speculative basis of all religion." "When Carlyle speaks of the universe as, in very truth, the Star-domed city of God, and reminds us that through every crystal and through every grass-blade, but most through every living soul, the glory of a present God still beams, he means pretty much the same thing that Mr. Spencer means, save that he speaks with the language of poetry, with language coloured by emotion, and not with the precise, formal, and colourless language of science." Fiske adds quotations from the Old Testament to much the same purpose ("Who by searching can find

him out?") He concludes, however, with a very interesting insistence that, in explaining moral beliefs and moral sentiments as products of evolution, the evolution theory is committed to a teleological interpretation of its own process. "For clearly when you say of a moral belief or a moral sentiment that it is a product of evolution, you imply that it is something which the universe through untold ages has been labouring to bring forth, and you ascribe to it a value proportionate to the enormous effort that it has cost to produce it." Furthermore, we see, says Fiske, that the "subtle and exquisite forces" of evolution "have wrought into the very fibres of the universe those principles of right living which it is man's highest function to put into practice." Fiske closes with an indication that this religious aspect of the Spencerian doctrine ought to be "expounded and illustrated with due thoroughness."

It becomes thus plain that the thought of the teleology of the evolutionary process is now decidedly distinct in Fiske's mind. In "The Unseen World" he had expressed the longing for the assurance that our present lives are working together towards some good end. But now during the time since the issuing of the "Cosmic Philosophy," and apparently since the writing of "The Unseen World," there had already

come to Fiske the thought which he describes as having the character of a sort of "revelation," the thought whose genesis he set forth in the speech at Mr. Clark's dinner ("A Century of Science," IV.). The "good end" was defined to him. The "little child" of the hypothesis about infancy had revealed to him nature's teleology.

39. The Concord Summer School address on "The Destiny of Man, viewed in the Light of his Origin," gave Fiske the opportunity to proceed to that exposition of the religious aspect of Spencerianism for which he had thus been prepared. It is not altogether surprising that the contemporary critics of this address exaggerated the changed point of view which could indeed be detected in it, when it was compared with the "Cosmic Philosophy." The various indications that we have already found in that work pointing towards a more positive doctrine of the religious consciousness and of its object, could not well be observed by the reader apart from a knowledge of the consequences to which they later led the author. The vigorous polemic against anthropomorphism in the "Cosmic Philosophy," the equally vigorous attack upon various unscientific tendencies, the emphasis there laid upon the negative side of the Spencerian concept of religion,

all these features had inevitably put out of the reader's sight the fact that Fiske, even in the "Cosmic Philosophy," was already tending towards the definition of a more positive philosophy of religion. Fiske now, in his "Destiny of Man," retells the story of evolution very briefly, in the popular and untechnical fashion which he could so wonderfully control; but he now retells it as a distinctly "dramatic" tale, the unfolding of a plot. This process is now for him explicitly teleological, in the sense that the plan of the whole is legibly indicated by the facts regarding the evolution of man, and especially of man's moral nature. Fiske insists, as vigorously as ever, that the ultimate reality "remains far above our finite power of comprehension." But on the other hand, "the doctrine of evolution shows us distinctly, for the first time, how the creation and perfection of man is the goal toward which nature's work has been tending from the first." The intimation of immortality with which the essay closes is not nearly as precise as were Fiske's later opinions on the same subject, but it is much more positive than the bare statement of possibility with which the author of "The Unseen World" had felt himself obliged to be content. The reason given for this intimation is now distinctly a teleological one. The Power which has led man so long a road for

so noble an end cannot mean that mere death shall crown the work.

40. In the Preface to "The Idea of God," as we have already seen, Fiske undertakes an apology for his philosophical development thus far, and insists upon the close tie that binds his more recent thinking to the "Cosmic Philosophy." He cites the passages of the "Cosmic Philosophy" to which we before alluded as containing what we called his "germinal thoughts" about religion. He indicates very definitely that it is indeed the teleological interpretation of human evolution which has become prominent, of late, in his mind. The doctrine of evolution, properly interpreted, "replaces man in his old position of headship in the universe, even as in the days of Dante and Aquinas. That which the pre-Copernican astronomy naïvely thought to do by placing the home of man in the centre of the physical universe, the Darwinian biology profoundly accomplishes by exhibiting Man as the terminal fact in that stupendous process of evolution whereby things have come to be what they are. In the deepest sense it is as true as it ever was held to be, that the world was made for Man, and that the bringing forth in him of those qualities which we call highest and holiest is the final cause of creation."

The text of this discussion on the "Idea of

God" is obliged to review the considerations which had formerly forced Fiske to reject "anthropomorphism." A certain historical interpretation of the meaning of theism now comes to Fiske's mind, an interpretation which, in his own treatment of the subject, appears as a relative novelty. In the history of Christianity, as he finds, there have been two ideas of God in conflict with one another. The one is the Greek idea, derived in large measure from the Stoics. This is the idea of the indwelling Deity, "eternally operating through natural laws." For his account of this Greek aspect of the conception of Deity, as he now emphasizes it, Fiske is indebted to Professor A. V. G. Allen's "Continuity of Christian Thought." The influence of this work supplements in an important way the views about the history of thought which Fiske, following Lewes and other similar interpreters, had earlier emphasized. The other conception of God which in Christian theology has struggled with that of the "immanent God" is the dualistic conception. It is now interesting to note that the dualistic conception tends, in this discussion of Fiske's, to take the place of dishonour which had formerly been occupied by anthropomorphism. On the other hand, he recognizes, now that the necessity of a teleological interpretation of evolution has come home to

him, that the other, the "Greek," the immanent God, has to be conceived in a sense which is indeed still somewhat anthropomorphic. But Fiske hereupon restates his former antithesis beween "anthropomorphism" and "cosmism" with the following interesting variations: "Between the two ideas of God which we have exhibited in such striking contrast, there is nevertheless one point of resemblance; and this point is fundamental, since it is the point in virtue of which both are entitled to be called theistic ideas. In both there is presumed to be a likeness of some sort between God and man. In both there is an element of anthropomorphism. Even upon this their common ground, however, there is a wide difference between the two conceptions. In the one the anthropomorphic element is gross, in the other it is refined and subtle. The difference is so far-reaching that some years ago I proposed to mark it by contrasting these two conceptions of God as Anthropomorphic Theism and Cosmic Theism. For the doctrine which represents God as immanent in the universe and revealing himself in the orderly succession of events, the name Cosmic Theism is eminently appropriate; but it is not intended by the antithetic nomenclature to convey the impression that in cosmic theism there is nothing anthropomorphic." There is no doubt as

to Fiske's sincerity in identifying the essence of his new view with that of his former one, despite the admitted "enlargement," and the "revelation." We now see why he could do so, in view of tendencies already present in the "Cosmic Philosophy." We also see that there had indeed been a marked change in his attitude.

As to the old argument from "design," it is in its older forms as unconvincing for Fiske as ever. One must not conceive that an infinite being plans, contrives, adapts means to ends, and overcomes obstacles. The doctrine of evolution showed us that the universe is not a contrivance, "but an organism with an indwelling principle of life. It was not made, but it has grown." The teleology of nature is an "all-pervading harmony." To be sure, we cannot in detail conceive the means by which the infinite power expresses itself at all, except in so far as we say that its "expression" (not its "contrivance," for it is not finite, that it should contrive) shows us such and such a teleological value phenomenally realized. But "the teleological instinct in man cannot be suppressed or ignored." "Our reason demands that there shall be a reasonableness in the constitution of things." The "craving after a final cause" "can no more be extinguished than our belief

in objective reality." When we free this teleological instinct from its complications with the older design argument, it expresses itself in "our faith that, in the orderly sequence of events, there is a meaning which our minds could fathom were they only vast enough." Our conception is to remain as before, symbolic. But it is certain that we cannot regard the eternal Power as material, that we *must* regard it as quasi-psychical, and that we must define its meaning as ethical. Further, theoretical definition of the nature of God is still subject, for Fiske's mind, to the paradoxes which, in the "Cosmic Philosophy," had seemed entirely to exclude us from any definition of the Divine. But "practically there is a purpose in the world whereof it is our highest duty to learn the lesson, however well or ill we may fare in rendering a scientific account of it. When from the dawn of life we see all things working together toward the evolution of the highest spiritual attributes of Man, we know, however the words may stumble in which we try to say it, that God is in the deepest sense a moral Being. The everlasting source of phenomena is none other than the infinite Power that makes for righteousness. Thou canst not by searching find Him out: yet put thy trust in Him, and against thee the gates of hell shall not prevail; for there is nei-

ther wisdom nor understanding nor counsel against the Eternal."

41. In the "Century of Science" there are several different personal confessions of Fiske's experience, whereof the most extensive and important one, the speech at Mr. Clark's dinner, in 1895, has been already cited. The paper numbered II., in that volume, on "The Doctrine of Evolution: its Scope and Purport," is a further account of the conclusions to which Fiske had been led. It is interesting that in this address, delivered before the Brooklyn Ethical Association, Fiske makes a very definite effort to show how much importance he still attaches to the doctrine of Spencer in all its great features, except, indeed, the negative ones, while at the same time he distinctly says that: "As regards the theological implications of the doctrine of evolution, I have never undertaken to speak for Mr. Spencer; on such transcendental subjects it is quite enough if one speaks for one's self." For the rest, all the motives that we have thus far followed are brought together in this essay. There is the emphasis laid upon a teleological interpretation. There is the insistence upon the essential absurdity of materialism, and upon its strong opposition to the true Spencerian theory. There is also a recapitulation of the argument of the "Cosmic Phi-

losophy" about the relations between matter and mind, and about our consequent right to define the ultimate reality in quasi-psychical terms. And finally there is some discussion of the difficult question regarding Spencer's attitude toward this last problem.[1]

42. The final stage of Fiske's thought on these subjects is represented by the papers col-

[1] As, in the final edition of the *First Principles*, published in 1900, it appears, from Spencer's restatement and expansion of his former § 71, that Spencer never can have wholly agreed with Fiske's statement of his view about the "impassable gulf," and can have meant to accept Fiske's form of the argument only in so far as the relation between a mental and material world was thereby declared to be inscrutable, it is unnecessary further to follow Fiske's account, here and often repeated, of Spencer's acceptance, in a personal conversation, of the general sense of Fiske's chapter on "Matter and Spirit" in the *Cosmic Philosophy*. Of course Spencer is indeed no materialist. Moreover, Spencer no doubt found the chapter, as he then understood it, in the main acceptable. But with regard to just the point of which Fiske's later teleological disposition made so much, Spencer, had the matter been presented to him side by side with the consequences that Fiske drew, would not have agreed. And the divergence later increased. For Fiske the "impassable gulf" becomes in his closing period a means of interpreting the material phenomena in terms of a hypothetical spiritual principle, which remains, indeed, in many respects inscrutable, but which in his later period he identifies with the God of religion. And the purely hypothetical spiritual realm of *The Unseen World* has now become for Fiske that in which

lected in "Through Nature to God." The Phi Beta Kappa address of June, 1895, on "The Cosmic Roots of Love and Self-Sacrifice," is a restatement of the teleological interpretation of the evolutionary process, — a restatement whose eloquence and literary beauty can be doubted by no one. This paper and that on "The Mystery of Evil" form a transition to Fiske's final view of the religious problems. "The Mystery of Evil" is a deliberate study of a problem which the "Cosmic Philosophy" had as deliberately refused to consider. The third and most important discussion of the book, that on "The Everlasting Reality of Religion," presents an argument which had come to Fiske's mind as "wholly new." With this supposed novelty we are not here concerned. The argument expands the thought which we have already summarized in our general account of Fiske's later religious development, — the thought that the religious consciousness of humanity, as a positive adjustment to an unseen world, must be interpreted (in harmony with evolutionary principles) as a positive adjustment to a reality whose deeper

man must believe, just because he finds that the process of evolution is teleological, and just because, in addition, the deepest instincts of our nature demand this interpretation. To this result Spencer could not have assented.

significance we increasingly appreciate, and not as a mere recognition of an inscrutable mystery, nor, on this positive side, as an aberration of the intellect. There can be no doubt that here Fiske is decidedly far removed from the Spencerian interpretation of religion. It is interesting to see in how many ways his phraseology now differs from the speech of the "Cosmic Philosophy." "From our modern monotheism . . . accidents of humanity are eliminated, but the notion of a kinship between God and man remains, and is rightly felt to be essential to theism. Take away from our notion of God the human element, and the theism instantly vanishes; it ceases to be a notion of God. We may retain an abstract symbol to which we apply some such epithet as Force or Energy or Power, but there is nothing theistic in this. Some ingenious philosopher may try to persuade us to the contrary, but the Human Soul knows better; it knows at least what it wants; it has asked for Theology, not for Dynamics, and it resents all such attempts to palm off upon it stones for bread." "If the world's long-cherished beliefs are to fall, in God's name let them fall, but save us from the intellectual hypocrisy that goes about pretending we are none the poorer!" "The lesson of evolution is that through all these weary ages the Hu-

man Soul has not been cherishing in Religion a delusive phantom, but in spite of seemingly endless groping and stumbling it has been rising to the recognition of its essential kinship with the ever-living God. Of all the implications of the doctrine of evolution with regard to Man, I believe the very deepest and strongest to be that which asserts the Everlasting Reality of Religion."

43. We have now followed in outline the later developments of Fiske's thought, not attempting criticism, but endeavouring to make especially prominent the naturalness and continuity of the process by showing, with Fiske's own aid, what were the motives, present already before the "Cosmic Philosophy" was written, manifest from time to time in the course of that work, and effective in Fiske's later development, — the motives upon which the entire process depended. It was, as a fact, an organic growth, not a conversion. Our general view of the development is this, — A man heartily devoted from the outset to the problems of human life and history, but fitted by his marvellously ample and versatile early training to appreciate the interests of scientific study, found himself growing up with the wonderful new doctrine of the transformation of species, and experiencing the early expressions of the

Spencerian system of philosophy. The unity and continuity which the doctrine of evolution promised to give to history fascinated our young philosopher, and he devoted himself first to the study, and then to the defence, of the general doctrine of evolution itself. A liberal at heart, naturally disposed to defend the freedom of inquiry against arbitrary and traditional interferences, he sometimes found himself aroused, by conservative opposition, to a certain gayety of vigorous polemic in defence of the new doctrines. This polemic, when it occurs, is far less characteristic of him than are his kindliness and his learning; and it contains some features that were foreign to the boundless intellectual hospitality which he showed, more and more, throughout his later years. However he might at times express himself, his nature as a student of serious problems, and especially of religious problems, was a kindly, fair-minded, open-hearted nature. He looked on many sides of various issues. In the midst of the greatest doubts and mysteries he remained always tranquil. Despite all austerities of polemic, he was always docile in intellect, and optimistic in his judgment of things. Despite all negations, he was essentially hopeful of truth. His religious sentiment was strong and hearty, and was always intimately

related to his warm and childlike humanity. Man was from the start, for him, the central object of the universe, however much the Copernican system and the theory of evolution might seem to unite to dethrone man from his ancient position of dignity. Meanwhile Fiske combined in a remarkable way the great intellectual plasticity which rendered him so good a disciple, and the great fidelity which made him so patient an expositor, with a very genuine independence of inner experience and of personal judgment which kept him, after all, never the mere follower of another man. The first great result of this union of learning and enthusiasm, of discipleship and spiritual independence, was a work wherein, for the moment, the lover of human history seemed to disappear behind the expositor of the doctrine of evolution. The formulas, never slavishly repeated, but very patiently assimilated and very faithfully although independently presented, — the formulas, I say, of another man at once aided Fiske to win his own spiritual freedom, and for the time held back the otherwise so rapid growth of his own insight into the problems of life in general, and of religion in particular. But by the very writing of the "Cosmic Philosophy" he set free the soul that was far too strong to be bound by another

man's phrases. Fiske now returned to his natural studies — those of history and of human nature. Pursuing these as he did, under a pressure of not altogether welcome worldly cares, he was forced to postpone certain of his favourite plans for a wide and philosophical study of human history until it was too late to carry them out at all. The stream of his investigation was forced to wander long over plains, fertile indeed, but remote from the heaven-piercing mountains of thought where his youthful aspirations had been nurtured. As he himself tells us, he read, during the later period of his life, very little philosophical literature. But he remained loyal to his love of Unity and Humanity in thought, and to his faith in the essential Wholesomeness of things. When he looked back on the greater problems of philosophy, his disposition to interpret the world in terms of man — a disposition nourished by his historical studies, as it had been from the start determined by his nature — was the principal motive that led to his gradual transformation of opinion. His interest in lofty religious ideals joined itself in his mind with this interest in humanity, both to determine the problems upon which he most dwelt, whenever he now thought of philosophy at all, and to suggest their solution. His beautifully childlike nature

had originated, even while he wrote the "Cosmic Philosophy," what his ingenuity and his learning had enabled him to develop, namely, the hypothesis as to the significance of infancy. This thought, and that other thought regarding the priority of mind over matter in our conception of the universe, combined to lead him to a teleological interpretation of the process of evolution. By perfectly natural steps he was hereupon led to an interpretation of the Idea of God and to a conception of the Destiny of Man which brought him to the threshold of Constructive Idealism. This threshold he indeed never crossed, partly because he had no time for technical philosophy in his later years, and partly because he retained to the end his profound respect for the Spencerian arguments against our right to define in precise theoretical terms the actual and inner nature of reality. He therefore preferred to conceive his own later results rather as a sort of inevitable and rational faith than as a doctrine capable of close technical analysis. As a fact, by this very process, he has led a much greater number of persons to retain their hope of an ideal interpretation of the universe than could ever have been won away from the tendencies of a doubting age by any more technical exposition of philosophy.

IV

RELATIONS OF THE "COSMIC PHILOSOPHY" TO LATER EVOLUTIONARY THOUGHT

44. It remains to sum up very briefly the nature of the evidences that exist as to how Fiske, had he been able to rewrite his book, would have supplemented or amended the treatise, especially in the light, not merely of his own growth in religious opinion, but of the later developments of the philosophy of evolution.

Since Fiske published the "Cosmic Philosophy," the Spencerian system has been completed. As regards the two great divisions of that philosophy which were not before Fiske when he wrote, namely, the "Sociology" and the "Ethics," I can find no evidence that Fiske, apart from the matters which we have considered in our third Division, would have seen reason for a radical divergence from Spencer in main principles. There are, however, grounds why one must suppose that in important, though still subordinate matters of doctrine, he might have remained at variance with Spencer's later-expressed theories, just as these theories, when they came to light, were in a measure opposed

to the ones that Fiske had expressed in the "Cosmic Philosophy," or had at least indicated in the course of that book.

The first of the matters that I yet have space to mention in this connection relates to Fiske's views as to the origin of primitive mythology. In the "Myths and Myth-Makers" (published in 1872, and written during the immediately previous years, contemporaneously with a great part of the "Cosmic Philosophy"), Fiske, following, as he tells us in the Preface to that book, such authorities as Grimm, Max Müller, and Tylor, undertook, as expositor, "to present . . . results in such a way as to awaken interest in them." He did not undertake to form a new theory of his own regarding mythology. In the main he conceived (op. cit. chapter i.) that a myth is "in its origin an explanation, by the uncivilized mind, of some natural phenomenon." A primitive man explained a natural phenomenon "when he had classified it along with the well-known phenomena of human volition." Meanwhile, Max Müller's then famous theory of the origin of myths, although Fiske (chapter vii.) regards it as defective (in so far as it refers that origin to a "disease of language"), still is founded upon individual interpretations of Greek and early Indic myths which Fiske,

on the whole, accepts.[1] In consequence of Max Müller's influence, in the course of the "Myths and Myth-Makers," Fiske freely uses what is usually called the "solar" theory for the explanation of many myths, and extends this explanation over a decidedly wide range. While, in one passage, Fiske refers to Spencer's already published essay on "The Origin of Animal Worship,"[2] he does not give in his adherence to the full Spencerian doctrine, according to which *all* mythology can be traced back, through ancestor-worship, to the belief in the survival of the dead. In the "Cosmic Philosophy" (Part I. chapter vii.) Fiske asserts that: "In the primitive hypothesis, the forces of nature must have been likened to human volition, because there was nothing else with which to compare them. Man felt within himself a source of power, and did not yet surmise that power could have any other source than one like that which he knew. Seeing activity everywhere, and know-

[1] Loc. cit. chap. vii., at the outset. "The analyses of myths contained in this noble essay [Müller's *Essay on Comparative Mythology*] are in the main sound in principle and correct in detail." This introduces a sentence in which Müller's general theory is "nevertheless" condemned.

[2] Now printed in the *Essays*, Library Edition, vol. i. pp. 308–350; cited by Fiske in chapter vii. of the *Myths and Myth-Makers*.

ing no activity but will, he identified the one with the other."

Of course this theory is by no means peculiar to Fiske. On the contrary, it is no doubt still the most usual one. But it is not Spencer's. While Spencer's just cited essay, taken by itself, may not have impressed Fiske as requiring a special revision of the hypothesis concerning myth-making which he had accepted, the matter would have appeared to him to require more careful reconsideration if he had had before him, at the time when he finally prepared the "Cosmic Philosophy" for the press, the first volume of Spencer's "Principles of Sociology."[1] In Part I., chapter ix. § 65, Spencer takes a definite stand against the belief that the tendency to regard inanimate things as animate is a primary tendency of primitive man. Spencer is "obliged to diverge at the outset from certain interpretations currently given" of the superstitions of the primitive man. "The belief, tacit or avowed, that the primitive man thinks there is life in things which are not living, is clearly an untenable belief. Consciousness of

[1] According to the Preface to the first edition of this volume, only 160 pages of the original issue of the volume (in parts, to subscribers) had appeared in 1874 (viz., in June and November of that year). The whole volume was published at the end of 1876.

the difference between the two, growing ever more definite [in lower animals] as intelligence evolves, must be in him [i. e. in primitive man] more definite than in all lower creatures. To suppose that without cause he begins to confound them is to suppose the process of evolution is inverted." The superstitions of animism must therefore be due (§ 67) to "secondary beliefs," which "some striking experience" arouses in man. Spencer then, in a series of chapters, proceeds to explain the "striking experiences" (dreams, associations of ideas aroused in connection with death, etc.), which in his opinion give rise to the belief in ghosts. Thereupon, through the ancestor-worship theory, he undertakes to reduce all the phenomena of primitive religion to derivatives from belief in ghosts. In chapters xxi. xxiii. and xxiv. Spencer explains, upon this basis, the tendency to regard images, plants, inanimate objects, and nature in general, as the abode of spirits, or as themselves animated. In chapter xxi. Spencer sums up the whole "primitive theory of things" in the same general terms. Animism and fetichism are thus explained in ways decidedly foreign to those that Fiske held in his own early period.

Spencer's views, at least as he states them, have not been very extensively accepted by anthropologists. Moreover, in the more recent

discussions of the primitive mind, vast numbers of new facts relating to magic, Tabu, myth, and custom have been collected, and decidedly new theories have been advanced. Especially ill, however, has Max Müller's type of explanation fared in recent literature; and the "solar" theory, whose interpretations of individual myths Fiske so freely accepted, has gone far into the background of discussion.

If Fiske had rewritten the "Cosmic Philosophy," he could not have ignored this aspect of the sociological problems of evolution. He would almost certainly have had to give it more space than primitive religion occupied in the original form of the "Cosmic Philosophy." His final view as to the worth of Spencer's hypothesis, as well as of his own former interpretation of mythology, might also have been very greatly modified by the prominence given to primitive magic through the researches of Fraser, in the "Golden Bough" (researches of a type that would have greatly fascinated the young Fiske, could he have but known of them at the time when he wrote the "Myths and Myth-Makers"). In brief, this whole department of Fiske's studies would have needed, one may be sure, a very deep-going alteration, had he been able to return to the subject in the light of recent research, and would have re-

ceived such an alteration, just because one of Fiske's most decided interests was here concerned.

45. Another branch of Fiske's discussions of social evolution would have been sure to undergo great alteration if he had been able to reconsider the whole matter at length. I refer to his treatment of the evolution of institutions. Here, for one thing, Spencer's very elaborate Parts III. to VIII. of the "Sociology," with their treatment of Domestic, Ceremonial, Political, Ecclesiastical, Professional, and Industrial Institutions, would have called upon him, not only to supplement, but in some respects to alter, the views about the nature of institutional progress which he had set forth in speaking of the evolution of society. One point in particular may here be mentioned as of importance. The prominence which Fiske gives, in the relevant passages of the "Cosmic Philosophy," to the views of Sir Henry Maine, on the early constitution of society ("Cosmic Philosophy," Part II. chapter xviii.), might have been modified by what Spencer has to say in Part III. of the "Sociology," chapter ix. For Fiske shows a disposition to speak of Maine's views as rightly representing the early stages of society generally, while Spencer limits their application (§ 317 of the cited chapter) to "the evolution

of European nations." In another connection, the whole modern discussion of the early history of Marriage, not only as Spencer summarizes it, but as it has been discussed by various other writers, would have given Fiske ground to add, at all events, to the brief statements upon that subject which are found in his text.

On the other hand, it seems to me less probable that Fiske would have very notably altered his views as to the evolution, the significance, or the contents of the moral consciousness in consequence of any of the discussions of Spencer's treatise on Ethics. He might and probably would have had much to write by way of supplement to what he has indicated upon ethical topics in the "Cosmic Philosophy." But in its main outlines his ethical theory is sufficiently indicated in the book now before us. Here he is in close agreement with Spencer's principal theses. Their fuller development in the "Principles of Ethics" would have given him much food, both for thought and for possible exposition. But the result would have been less notable, in the way of change, than seems likely in case of his study of the problems of social evolution.

46. Yet in quite another direction Fiske would also have found himself called upon to supplement his present discussion, although I

doubt whether, in this direction, he would have altered any of his notable theses. The modern controversy concerning the "Factors of Evolution," the modern inquiry regarding the "Heredity of Acquired Characters," the recent researches into the origin of Instincts,—all these topics have been alluded to in the course of the foregoing notes. It is such matters as these that, as I ventured to say at the beginning of this Introduction, have "placed many aspects" of the doctrine of evolution "in a decidedly new light." It is tolerably plain that, on the whole, regarding these newer issues, Fiske would have remained on Spencer's side. Yet, had he rewritten this book, he could not have ignored topics so central in modern evolutionary discussion. Morever, in any restatement of his views of Spencer's Psychology, Fiske would have been forced to take account of at least the existence of modern Experimental Psychology, — a branch of inquiry that did not exist when he wrote, but that has set in new lights some topics which he discussed. He would have been obliged, also, to give some attention to those efforts to attach these same recent psychological investigations to the theory of evolution, which are represented by books like Professor Baldwin's "Mental Development in the Child and in the Race." Modern cerebral physiology, so

vastly altered since he wrote this book, would have been needed to give counsel as to how he should restate, in the light of later research, Spencer's notions regarding the evolution of nervous systems, and regarding the relations between brain and mind. And finally, if one may again mention a distinctively philosophical topic, Fiske's favourite assertion of the "concomitance," or "parallelism" between the nervous functions and the mind, — an assertion which he opposed, as we know, to all theories of interaction, or of "transformation of energy" between the physical and mental world, — would have required, had he undertaken to restate and defend it afresh, a discussion of the recent phases of the controversy about this very "psycho-physical parallelism," — a controversy which was never so warm and never so varied as it is at the present moment.

47. How Fiske, if endowed afresh with the vigour of his youth, would have set about the vast task of adjusting his "Cosmic Philosophy" to the results of that very advance of opinion and of knowledge to which, as a public teacher, he had contributed, we cannot know. But summing up the foregoing, we can feel fairly sure (1) that the work, if revised to suit its author's mind, would have especially emphasized that gradual growth of his own religious and

fundamental philosophical opinions which we have discussed at length. We can also be confident (2) that the later Spencerian statement of the Synthetic Philosophy would have been carefully considered, although in all probability Fiske would here have shown decided independence with regard to at least some of the most important features; for the problems of social evolution constituted his especial field of interest. We can fairly suppose (3) that the newer discussions of the "factors of evolution," and of the nature of psychological evolution, would have attracted his decided interest, and would have led to considerable supplements or amendments in his revised text.

In studying this treatise the reader of to-day may therefore do well to bear these topics especially in mind, and to consider them for himself in the light of the recent literature, thereby attempting, as in him lies, to do what the calm thoughtfulness and the lucid methods of our author are now no longer able to accomplish for those who admire him and who miss his presence.

CAMBRIDGE, MASS., August 19, 1902.

OUTLINES OF COSMIC PHILOSOPHY

PART I

PROLEGOMENA

"Quare speculatio illa Parmenidis et Platonis, quamvis in illis nuda fuerit speculatio, excelluit tamen: Omnia per scalam quandam ad unitatem ascendere." — BACON.

"Das schönste Gluck des denkenden Menschen ist das Erforschliche erforscht zu haben, und das Unerforschliche ruhig zu verehren." — GOETHE.

CHAPTER I

THE RELATIVITY OF KNOWLEDGE[1]

WHEN we contemplate any portion of matter, such as a cubical block of metal or wood, it appears to our senses to be perfectly solid. No breach of continuity appearing anywhere among the aggregate of visual and tactual perceptions which its presence awakens in us, we are unable to restrain ourselves from imagining that its parts are everywhere in actual contact with each other. Nevertheless, a brief analysis of this opinion will suffice to show that it cannot be maintained without landing us in manifest absurdity. We need only recollect that every portion of matter is compressible, — may be made to occupy less space than before, — and that compressibility, implying the closer approach of the constituent particles of the body, is utterly out of the question, unless empty space exists between these particles. We are therefore obliged to admit that the molecules of which perceptible matter

[1] [See Introduction, § 8.]

is composed are not in immediate contact, but are separated from each other by enveloping tracts of unoccupied space.

But no sooner do we seek refuge in this assumption than we are again met by difficulties no less insuperable than the one just noticed. The form of our experience of all objects compels us to postulate that cohesive or gravitative forces are continually urging the particles of matter toward closer union, while disruptive or thermal forces are continually urging them toward wider separation. In view of this, suppose we regard matter, with Newton, as consisting of solid atoms, never absolutely contiguous to each other, but always attracting or repelling each other with a force varying inversely as the squares of the distances between the atoms.

What then is the constitution of these hypothetical atoms? Are they divisible, or indivisible? And if divisible, what shall we say of the parts into which they are divided? Can these be again divided, and so on forever? If we say yes, we are speedily brought face to face with a double inconceivability. For, on the one hand, by no effort of thought can we conceive the infinite divisibility of a particle of matter. Mentally to represent any such division would require infinite time. On the other hand, granting that the particles which we have postulated as the component units of matter are divisible, we

have not escaped the difficulty which confronted us at the outset. For each of these particles, if divisible, is a piece of matter just like the block of metal or wood with which we set out, — only smaller in size. The particles of these particles cannot, as we have seen, be in direct contact; then they must each be composed of several particles not in contact, but exerting on each other attractive and repulsive forces that vary inversely with the squares of their distances apart; and again we have to ask of these particles, Are they divisible, or indivisible? and so on, forever.

Such are the difficulties into which we are led if we assume that the atoms of which matter is composed are divisible. Let us now assume that (as their name implies) they are indivisible. And this is, no doubt, the assumption which is most congruous with the experiences of the chemist. Yet we shall find that an absolutely indivisible atom is quite inconceivable by human intelligence. Every such atom, if it exists, must have an upper side and an under side, a right side and a left side, or if spherical, must have a periphery that is conceived as covering some assignable area. Now by no effort of our intelligence can we imagine sides so close together that no plane of cleavage can pass between them; nor can we imagine a sphere so minute that it cannot be conceived as divisible into

hemispheres; nor can we imagine a cohesive tenacity so great that it might not be overcome by some still greater disruptive force such as we can equally well imagine.

When we contemplate the mode in which one particle of matter acts upon the adjacent particles by attractive and repulsive forces, we find ourselves equally puzzled. As Mr. Spencer well observes, "Matter cannot be conceived except as manifesting forces of attraction and repulsion. Body is distinguished in our consciousness from space, by its opposition to our muscular energies; and this opposition we feel under the twofold form of a cohesion that hinders our efforts to rend, and a resistance that hinders our efforts to compress. Without resistance there can be merely empty extension. Without cohesion there can be no resistance. Thus we are obliged to think of all objects as made up of parts that attract and repel each other; since this is the form of our experience of all objects. Nevertheless, however verbally intelligible may be the proposition that pressure and tension everywhere coexist, yet we cannot truly represent to ourselves one ultimate unit of matter as drawing another while resisting it."

Nor is this the last of the difficulties which encumber our hypothesis of mutually attracting and repelling particles separated by tracts of unoccupied space. For this hypothesis requires us,

to conceive one particle acting upon another through a space that is utterly empty; and we can in no wise conceive any such action. How shall we escape this difficulty? Shall we assume that the intervals between the particles are filled by a fluid of excessive tenuity, like the so-called imponderable ether to which physicists are in the habit of appealing? We shall soon find that the problem is only shifted. As soon as we inquire into the constitution of this hypothetical intermolecular fluid, we are no better off than before. For we have no alternative but to regard this fluid as itself an extremely rarefied form of matter: since it does not perceptibly affect the weights of bodies, we must regard it as possessed of a density that is almost infinitesimal, — that is, its constituent particles must be separated from each other by regions of empty space that are even greater in proportion to the size of the particles than are the spaces that intervene between the molecules of that relatively dense form of matter which we call ponderable. With regard to the ether, as before with regard to the matter, we have to ask, How can its particles act upon each other through space that is utterly empty? How can a thing act where it is not? How can motion be transmitted, in the absence of any medium of transmission? and to this question no answer ever has been, or ever can be devised.

Thus, whichever horn of the dilemma we take hold of, we are sure to be gored by it. Whether we assume on the one hand that matter is absolutely solid, or on the other hand that it is absolutely porous, we are alike brought face to face with questions which we can neither solve nor elude.

If now we turn from the inquiry into the ultimate constitution of that matter out of which the universe is formed, and inquire what was the origin of this universe, we shall find ourselves plunged into still darker regions of incomprehensibility. Respecting the origin of the universe three verbally intelligible hypotheses may be formed. We may say, with the Atheist, that the universe is self-existing; or, with the Pantheist, that it is self-created; or, with the Theist, that it is created by an external agency. Let us examine these three propositions severally, not with the view of determining which of them is true, but with the view of determining whether any one of them is comprehensible.

Philosophically speaking, then, we must admit that, whether or not the Atheistic hypothesis of a self-existent universe be assumed as true, it is at any rate incomprehensible. We can form no genuine conception answering to the phrase "self-existence." For by self-existence we clearly mean existence which is not dependent on any extraneous existence; which is not con-

ditioned or determined by any cause. The assertion of self-existence is the denial of causation; and when we deny causation we also deny commencement, inasmuch as to suppose that there was a time when the existence commenced is to admit that the commencement of the existence was determined by some cause; which is contrary to our hypothesis. In order, therefore, to conceive self-existence, we must conceive existence throughout infinite past time; and to do this manifestly exceeds our powers.

The Pantheistic hypothesis of self-creation is similarly incomprehensible. Self-creation, equally with self-existence, excludes the idea of any extraneous determining cause. If the passage of the universe from non-existence, or from potential existence, into actual existence, were determined by any extrinsic cause, manifestly it would not be self-created. Nevertheless, to suppose that existence, after remaining for a long period in one form, suddenly took on of its own accord another form, requires us to imagine a change without any cause, — which is impossible.

Of the Theistic hypothesis, also, we must perforce admit that, whatever may be urged in favour of our accepting it as a help to our thinking, it is no less incomprehensible than the other two. In the first place, the creation of something out of nothing is a process which we are

wholly incapable of representing in thought. In the second place, granting that the universe was made from nothing by an external agency, we are compelled to ask whence came this agency? We must either admit for it another extrinsic cause still further back, and so on forever; or we must regard it as self-existing, in which case we are again brought face to face with the same ultimate difficulties which attend upon the atheistic hypothesis. For, as Mr. F. W. Newman observes, "a God uncaused and existing from eternity is quite as incomprehensible as a world uncaused and existing from eternity." Which conception is the more likely to be true, I repeat, does not for the present concern us. What we have now to notice is merely the incapacity of the human intellect for realizing either the one or the other. In spite of their great apparent diversity, the atheistic, pantheistic, and theistic hypotheses all contain, in one form or another, the same fundamental assumption. Sooner or later they all require us to conceive some form of existence which has had neither cause nor beginning; and to do this is impossible.

Nevertheless, in spite of the impossibility of conceiving it, this fundamental assumption is one which we are compelled to adopt, unless we abstain from theorizing altogether upon the

subject. For it is impossible to enter into any inquiry concerning causation without eventually postulating some First Cause. We are obliged to do so from sheer inability to follow out in thought an infinite series of causes.

Assuming, then, the existence of a First Cause, let us inquire for a moment into its nature. The First Cause must be *infinite*. For if we regard it as finite, we regard it as bounded or limited, and are thus compelled to think of a region beyond its limits, which region is uncaused. And if we admit this, we virtually abandon the doctrine of causation altogether. We therefore have no alternative but to regard the First Cause as infinite.

We are no less irresistibly compelled to regard the First Cause as independent. For if it be dependent, that on which it depends must be the First Cause. The First Cause can therefore have no necessary relation to any other form of Being; since if the presence of any other form of existence is necessary to its completeness, it is partially dependent upon such other form of existence, and cannot be the First Cause. Thus the First Cause besides being infinite must be complete in itself, existing independently of all relations, — that is, it must be *absolute*.

To such conclusions, following the most re-

fined metaphysical philosophy of the day,[1] are we easily led. By the very limitations of our faculties, we are compelled to think of a First Cause of all phenomena; and we are compelled to think of it as both infinite and absolute.

Nevertheless, it will not be difficult to show that such a conclusion is utterly illusive; and that in joining together the three conceptions of Cause, of Infinite, and of Absolute, we have woven for ourselves a network of contradictions more formidable, more disheartening, than any that we have yet been required to contemplate.

For, in the first place, that which is a cause cannot at the same time be absolute. For the definition of the Absolute is that which exists out of all relations; whereas a cause not only sustains some definite relation to its effect, but it exists, as a cause, only by virtue of such relation. Suppress the effect, and the cause has ceased to be a cause. The phrase "Absolute Cause," therefore, which is equivalent to "non-relative Cause," is like the phrase "circular triangle." The two words stand for conceptions which cannot be made to unite. "We attempt," says Mr. Mansel, "to escape from this apparent contradiction by introducing the idea of succession in time. The Absolute exists first by itself, and afterwards becomes a Cause. But

[1] [The reference is especially to Dean Mansel's *Bampton Lectures* on "The Limits of Religious Thought."]

here we are checked by the third conception, that of the Infinite. How can the Infinite become that which it was not from the first? If causation is a possible mode of existence, that which exists without causing is not infinite; that which becomes a cause has passed beyond its former limits."

But supposing all these obstacles overcome, so that we might frame a valid conception of a Cause which is also Absolute and Infinite: have we then explained the origin of the universe? Have we advanced one step toward explaining how the Absolute can be the source of the Relative, or how the Infinite can give rise to the Finite? To continue with Mr. Mansel, "if the condition of causal activity is a higher state than that of quiescence, the Absolute . . . has passed from a condition of comparative imperfection to one of comparative perfection; and therefore was not originally perfect. If the state of activity is an inferior state to that of quiescence, the Absolute, in becoming a cause, has lost its original perfection. There remains only the supposition that the two states are equal, and the act of creation one of complete indifference. But this supposition annihilates the unity of the Absolute."

These examples must suffice for my present purpose, which is to illustrate and enforce, at the beginning of our investigation, the doctrine

of the Relativity of Knowledge. They constitute but a small, though an important, portion of the mass of evidence which might be alleged. The history of metaphysical speculation — if we leave out of the account all psychological inquiry, which is a very different matter — is little else than the history of a series of persistent attempts to frame tenable hypotheses concerning the origin of the universe, the nature of its First Cause, and the ultimate constitution of the matter which it contains. History teaches us that all such attempts have failed; and furnishes us with ample inductive or empirical evidence that the human mind is incapable of attaining satisfactory conclusions concerning the First Cause, the Infinite, the Absolute, or the intimate nature of things. We accordingly say for brevity's sake that we cannot know the Absolute, but only the Relative; and in saying so, we implicitly assert two practical conclusions:

First, we cannot know things as they exist independently of our intelligence, but only as they exist in relation to our intelligence.

Secondly, the possibilities of thought are not identical or coextensive with the possibilities of things. A proposition is not necessarily true because we can clearly conceive its terms; nor is a proposition necessarily untrue because it contains terms which are to us inconceivable.[1]

[1] Hence, as will appear more fully hereafter, we have no

This great truth, which I have thus illustrated by a few empirical examples, must now be illustrated deductively. It must be shown how the impossibility of knowing or conceiving anything save the Relative results from the very constitution of our minds — from the very manner in which our thinking takes place. And this may be shown by several distinct lines of argument.

In the first place, all *knowing* is *classifying*. What do we mean when we say that any given phenomenon has been explained? We mean simply that it has been ranked along with similar phenomena which, having previously been grouped together, are said to be understood. For example, in walking out some clear Novem-

criterion of absolute or objective truth. But it will also appear that, in the realm of phenomena, with which alone are we practically concerned in forming the conclusions which make up our common sense, our science, and our philosophy, we do possess a valid criterion of relative truth in the test of inconceivability. A proposition concerning phenomena, which contains an inconceivable term, is *ipso facto* a proposition without a basis in our experience of phenomena, and is accordingly inadmissible. But a proposition concerning noumena, which contains an inconceivable term, is entirely out of relation with experience, since we have no experience of noumena; and we have accordingly no means of judging whether it is true or not. This is what is meant by the statement in the text. [On the relation of this statement to Spencer's doctrine of the test of the truth of a proposition, see Introduction, § 8.]

ber evening, your attention is arrested by a bright but suddenly vanishing track of light across the sky, which you recognize as the appearance of a "falling star." In doubt, perhaps, as to the true *explanation* of this phenomenon, you appeal to some astronomer, who tells you that a zone of planetary matter encircles the sun; that the course of this zone, lying near the course of the earth's orbit and not being concentric with it, must intersect it at sundry points; and that when, at certain seasons of the year, such intersection occurs, the gravitative force of the earth pulls down some of the fragments constituting this zone, and unites them with its own mass. That is to say, he ranks the phenomenon which is to be explained along with the more familiar phenomena of heavy bodies which circulate about a vast central mass, and which, by their gravitative power, draw to themselves whatsoever comes within a certain distance of them. And this you feel to be a perfectly satisfactory *explanation*. Similarly, when Newton explained the manner in which these planets are kept revolving about the sun, he had recourse to the hypotheses of gravitation and tangential momentum. By the former he classified the unknown force which keeps the moon from flying away from the earth along with the familiar force which causes unsupported terrestrial bodies to fall toward the earth's cen-

tre. By the latter he classified the unknown force which keeps the moon from tumbling down upon the earth along with the familiar force which urges a stone whirled at a sling's-end to fly away upon a tangent. In each case he did nothing but classify phenomena which had hitherto remained unclassified; and this was rightly felt to be a triumphant explanation — although the ultimate *nature* of the forces operating remained as mysterious as before.

If now we proceed still further, and ask in what sense the force which makes apples fall can be regarded as known by us, — we can only reply, it is not known in itself, but only in its manifestations throughout a number of phenomena which can be classed together, and any one of which is said to be known when it is perceived to be like its congeners previously presented to our consciousness. We know a thing only when we classify it in thought with some other thing; only when we see it to be like some other thing. In short, *cognition* is possible only through *recognition*. In the infant, we may see that there are no cognitions until the feelings awakened by the presence of external objects have been arranged into groups, so that when certain sensations occur they may be recognized as belonging to such or such a group. And in the adult, as our examples already cited suffice to show us, an object is

known just in so far as the impressions which it produces upon us can be assimilated to previous impressions. Or if this is still not perfectly clear, a brief citation from Mr. Spencer will make it clear. "An animal hitherto *unknown*, though not referable to any established species or genus, is yet *recognized* as belonging to one of the larger divisions — mammals, birds, reptiles, or fishes; or should it be so anomalous that its alliance with any of these is not determinable, it may yet be classed as vertebrate or invertebrate; or if it be one of those organisms of which it is doubtful whether the animal or vegetal characteristics predominate, it is still known as a living body; even should it be questioned whether it is organic, it remains beyond question that it is a material object, and it is cognized by being recognized as such. Whence it is manifest that a thing is perfectly known only when it is in all respects like certain things previously observed; that in proportion to the number of respects in which it is unlike them, is the extent to which it is unknown; and that hence when it has absolutely no attribute in common with anything else, it must be absolutely beyond the bounds of knowledge."[1]

The bearing of all this upon our main thesis is so obvious as to need but the briefest men-

[1] *First Principles*, p. 80. [§ 24.]

tion. Manifestly the First Cause, the Infinite, the Absolute, can be known only by being classified. We can conceive it at all only by conceiving it as of such or such kind — as like this or that which we have already conceived. There can be but one First Cause; and this, being uncaused, cannot be classified with any of the multiplicity of things which are caused. The Infinite, again, cannot be conceived as like the Finite; nor can it be classed with any other Infinite, since two Infinites, by mutually limiting each other, would become finite, and thus destroy each other. And likewise the Absolute cannot, without a manifest contradiction in terms, be regarded as sustaining a relation of likeness to anything else. For by the definition of the Absolute, it is that which exists out of all relation. Thus by the very constitution of the knowing process, we are forever debarred from knowing anything save that which is caused, which is finite, and which is relative.

If we start from another point of view, and contemplate the process of knowing under a different but correlative aspect, we shall be driven to the same inevitable conclusion. In order to know anything, we must not only recognize it as *like* certain other things, but we must recognize it also as *different* from certain other things. We cognize whiteness, not only by its likeness to the whiteness previously presented to our con-

sciousness, but also by its difference from redness, blueness, or blackness. If all things were white we should have no knowledge of whiteness. To constitute an act of cognition, distinction is as necessary as assimilation. As Mr. Mansel has ably shown, "The very conception of consciousness necessarily implies distinction between one object and another. To be conscious, we must be conscious of something; and that something can only be known as that which it is, by being distinguished from that which it is not. But distinction is necessarily limitation; for if one object is to be distinguished from another, it must possess some form of existence which the other has not, or it must not possess some form which the other has." Accordingly, if we are to conceive the First Cause at all, we must conceive it as limited; in which case it cannot be infinite: and we must conceive it as different from other objects of cognition; in which case it is relative, and cannot be absolute.

Finally, we cannot know the Absolute, because all knowledge is possible only in the form of a relation. There must be a Subject which cognizes and an Object which is cognized. The subject is a subject only in so far as it cognizes the object, and the object is an object only in so far as it is cognized by the subject. Eliminate either one, and the act of cognition is destroyed. Hence the Absolute, if it is to be

known, must be an object existing in relation to a subject; it cannot be known in itself, but only in its relations to the knowing mind; that is, it can be known only by ceasing to be the Absolute.

Thus by whatever road we travel, we are brought up at last against the same impassable barrier. By no power of conception or subtilty of reasoning can we break down or undermine the eternal wall which divides us from the knowledge of things in themselves. If we attempt to frame any hypothesis concerning their nature, origin, or modes of action, we find ourselves speedily checkmated by alternative impossibilities. And if, resting in despair after all our efforts have proved fruitless, we inquire why this is so, we find that from the very organization of our minds, we can frame no cognition into which there do not enter the elements of *likeness*, *difference*, and *relation*; so that the Absolute, which presents none of these elements, is utterly and forever unknowable.

What is the meaning of this conclusion, when translated from the metaphysical language in which I have expressed it into language that is somewhat more familiar? It means not only that the Deity, in so far as absolute and infinite, is inscrutable by us, and that every hypothesis of ours concerning its nature and attributes can serve only to illustrate our mental impotence;

but it also means much more than this. It means that the Universe in itself is likewise inscrutable; that the vast synthesis of forces without us, which in manifold contact with us is from infancy till the close of life continually arousing us to perceptive activity, can never be known by us as it exists objectively, but only as it affects our consciousness. It means, in short, that we cannot transcend the organically imposed limits of our own intelligence. We do not know matter, but we know a group of co-existent states of consciousness which we call the perceptions of resistance, extension and colour, sound or odour. We do not know motion, but we know the group of sequent states of consciousness produced by minute alterations in the muscles of the eyes, or perhaps of the tactual organs, in the act of attending to the moving object. Nor do we know force, but we know continual modifications of our consciousness which we are compelled to regard as the manifestations of force. Nor do we even know consciousness absolutely and in itself: we know only states of consciousness in their relations of coexistence and sequence, likeness and unlikeness.

Although this is one of the best-established conclusions of modern psychology,[1] it is still a

[1] [Fiske, like Spencer, and like a considerable number of the other English thinkers of the date when the *Cosmic*

conclusion which requires considerable effort to understand in all its implications; and for this reason, as well as on account of its supreme importance, it will be desirable briefly to illustrate it from yet another point of view. We shall be assisted in comprehending the general truth by a set of considerations which show that, although our internal feelings or states of consciousness are constantly produced by external agents, yet we have no warrant whatever for assuming that the external agent in any way resembles the internal feeling. For instance, although the feelings of redness and resistance are caused by agencies without us, we have no warrant for assuming that the external cause of redness resembles the feeling of redness, or that the external cause of resistance resembles the feeling of resistance. In other words, we know redness and resistance only as phenomena, only as modifications of consciousness; and although we are compelled to refer these phenomena to causes which exist externally and which would still exist if there were no minds to be affected by them, we are nevertheless unable to assert that these external causes — the real things corresponding to the phenomena of redness and

Philosophy was written, includes the "Theory of Knowledge" in "Psychology." Since the more recent developments of Empirical Psychology, this usage is no longer so common.]

resistance — are in any wise like the phenomena.

To any one accustomed to examine these matters, such a conclusion seems much like a truism ; amounting, indeed, merely to the statement that we cannot get outside of our own minds. Nevertheless, it will perhaps not be considered a needless prolonging of the argument if I add a few concrete illustrations.

In the first place, it is extremely probable that the kinds of feeling awakened by the same external cause are not quite alike in any two species of animals. When Wieniawski plays his violin in the Music Hall, his human auditors have awakened in them those feelings which we designate as the consciousness of musical sound ; but if he were to play his violin over a tank containing a number of those mollusks which have no organs of hearing, the feelings awakened in them would be wholly different. They would feel a sort of nervous shiver or jar, like that which our fingers experience when holding a vibrating tuning-fork ; and they would very likely all shrink into their shells. In like manner, the same external agents which arouse well-defined tactual feelings in us can arouse in a lobster, whose feet and claws are encased in a bony shell, nothing but that vague sort of tactual feeling of which we are conscious when we poke things with a stick.

In the second place, it is extremely probable that the subjective feelings awakened by the same external cause are not quite alike in any two individuals of the same species. In those persons who are troubled with Daltonism, or colour-blindness, luminous undulations so different as those of red and green awaken feelings that are identical. On the other hand, "aerial pulses recurring at the rate of 16 per second are perceived by some as separate pulses; but by some they are perceived as a tone of very low pitch. Similarly at the other extreme. Vibrations exceeding 30,000 per second are inaudible through certain ears; while through ears that are, as we may suppose, of somewhat unlike structures, these rapid vibrations are known as an excessively acute sound."[1]

And thirdly, let us notice a set of facts which are so familiar to us that we overlook their significance. "A whiff of ammonia, coming in contact with the eyes, produces a smart; getting into the nostrils, excites the consciousness we describe as an intolerably strong odour; being

[1] "It is probable that the antennæ of insects respond to stimuli which leave us insensible, while stimuli which affect us leave them undisturbed. . . . We know there are a thousand tremours in the air which beat upon our ears unheard; and if more sensitive organs are capable of hearing some of these, there must be tremours which no organism can feel." —Lewes, *Problems of Life and Mind*, vol. i. p. 255.

condensed on the tongue, generates an acrid taste; while ammonia, applied in solution to a tender part of the skin, makes it burn, as we say." "A vibrating tuning-fork, touched with the fingers, gives them a sense of jar; held between the teeth, it gives this same sense to the parts in which they are embedded, while by communication through the bones of the skull, its vibrations so affect the auditory apparatus as to awaken a consciousness of sound — a consciousness which alone results, if the tuning-fork does not touch the body." "The sun's rays falling on the hand cause a sensation of heat, but no sensation of light; and falling on the retina cause a sensation of light, but no sensation of heat." Note that in all these cases the same external cause produces widely different phenomena according to the different avenues through which it affects our consciousness. The external cause cannot resemble *all* these phenomena, its effects; we do not know which it resembles; what warrant have we then for assuming that it resembles any one of them?

To these examples, culled from Mr. Spencer's "Principles of Psychology," let me add another, which, though less obvious, is equally striking. The compound solar ray, when analyzed, is found to consist of three sets of relatively simple rays. First, we have the visible rays of medium refrangibility, ranging from red

to violet, and sometimes called the Newtonic rays. Beyond the violet, in the outlying portions of the spectrum, lie the so-called Ritteric rays, of greatest refrangibility, which are not visible, but are manifested through their actinic or chemical effects; these are the rays with which we photograph. Beyond the red, at the other end of the spectrum, lie the so-called Herschellic rays, of least refrangibility, which also are not visible, but are manifested through their thermal effects. These invisible rays differ from the visible physically, only by their different periods of motion or wave-lengths, in which respect the visible rays differ also among themselves, as is indicated by their different colours. Bearing this in mind, let us contemplate the remarkable series of effects produced in our consciousness by gradually increasing rates of vibration in the particles of matter. Vibrations occurring less frequently than 16 times in a second produce in us the consciousness of a succession of noises. Vibrations which occur oftener than 16 times, but less often than 30,000 times, in a second, produce in us the consciousness of musical notes, which are higher and higher in pitch as the vibrations are more rapid. Vibrations occurring oftener than 30,000 times, but less often than 458,000,000,000,000 times, in a second, do not affect us through the ears, but the more rapid ones affect us through the

nerves of the skin, and produce in us the consciousness of heat. Vibrations occurring at the rate of 458,000,000,000,000 in a second affect us through the eyes, and produce in us the consciousness of red light; at the rate of 577,000,000,000,000,000 in a second, they produce in us the consciousness of green light; at the rate of 727,000,000,000,000 in a second, they produce in us the consciousness of violet light. At still higher rates than this, they cease to affect us through the eyes, and indeed produce in us no definite state of consciousness at all, though they may be remotely concerned in keeping up that vague organic feeling of *bien-être* or pleasurable existence, which is in part due to the indirect effects of the Ritteric portion of the solar rays upon the chemical actions going on throughout our bodies. Here, then, we have one and the same external agency — vibrations among particles of matter — producing in us feelings so different as those of sound, heat, and light. And when it is asked which of these feelings the external cause resembles, is not the answer sufficiently obvious that in all probability it resembles none of them, and is comparable with none of them? May we not clearly see that what appears to us as a series of widely distinguished phenomena may after all correspond to a set of objective realities between which there is no such wide distinction? And

do we need any more evidence to convince us that *phenomena* — by which I mean the effects produced upon our consciousness by unknown external agencies — are all that we can compare and classify, and are therefore all that we can *know?*

Perhaps, however, it may still appear that, in the illustration just cited, we have assumed a knowledge of the external cause, to a certain extent. In asserting that the feelings of sound, of heat, and of light are alike caused by vibrations among particles of matter, we may perhaps seem to imply that we do know these vibrations, and we may be suspected of formulating the various states of consciousness in question, in terms of the objective reality.[1] But a moment's reflection will convince us that this is not the case. After the illustration with which this chapter opened, it is hardly necessary to say that the knowledge of a vibration of particles as an objective reality, is utterly unattainable by us. We reach the conception of a vibration of particles only by inference from the states of

[1] In his paper on "Hibernicisms in Philosophy" (*Contemporary Review*, January, 1872, p. 147), the Duke of Argyll himself commits the following exquisite bull: "We now know what light is 'in itself' — *that is to say*, we know the nature and constitution of it, not in terms of the sensation it gives to us, but *in terms of a wholly different order of conception.*" The italics are mine.

consciousness aroused in us by visible or palpable vibrations. Certain subjective experiences of undulatory movement, as when a pebble is dropped into still water, or as when a string is made fast by one end and twitched at the other, beget in us the conception of vibration; and this conception we transfer in thought to those molecules and atoms of which we believe material bodies to be constituted. So far, then, from interpreting our feelings of light, heat, and sound in terms of the objective reality, we have merely been interpreting certain states of consciousness in terms of other states. Or, to put the same statement into different language, we have regarded the phenomena of sound, heat, light and actinism as adequately *explained* when we have classified them with certain other phenomena of vibratory motion. We merely affirm that a cause which, under a given set of conditions, will produce certain states of consciousness within us, will, under a different set of conditions, produce certain other states of consciousness. Concerning the *nature* of the cause, whether we call it vibration, or are content to go on calling it heat or light, we affirm nothing, and can know nothing.

CHAPTER II

THE SCOPE OF PHILOSOPHY[1]

IN setting forth and illustrating the conclusion that we can only know that which is caused, which is finite, and which is relative, we have virtually rejected as impracticable and useless a large number of the inquiries with which philosophy has habitually concerned itself. Both by practical examples, and by a series of mutually harmonious deductions from the mode in which our intelligence works, as revealed to us by psychologic analysis, it has been shown that we are forever debarred from any knowledge of the Absolute, the Infinite, or the Uncaused; that we can affirm nothing whatever concerning the ultimate nature of Matter or Mind; and that all our knowledge consists in the classification of states of consciousness produced in us by unknown external agencies. Nevertheless, from the earliest times, philosophy has busied itself in attempts to reach tenable conclusions respecting the nature and attributes of the absolute and infinite First Cause; it has ever tacitly assumed that the ultimate nature of

[1] [See Introduction, § 9.]

Matter as well as of Mind constitutes a legitimate subject of investigation; and that from the knowledge formed by the organized experience of recurring states of consciousness, we can in some mysterious way rise to a so-called higher grade of knowledge, in which realities no less than phenomena may become the object of thought. The earliest philosophic speculations of the Greeks dealt almost exclusively with the origin of the Universe, and the nature of its πρώτη ἀρχή or First Cause, or with just such theories of the ultimate constitution of matter as we saw in the previous chapter leading us to alternative impossibilities of thought. In the "Parmenides" and "Sophistes" of Plato we may find, presented with unrivalled acuteness, though rendered dreary by endless verbal quibbling, many of the same inquiries concerning the nature of the Absolute which we have been led to condemn as impracticable. Is the Absolute One or Many? Is the One Finite or is it Infinite? And these inquiries, in the first-named dialogue, lead up to the same sort of startling paradoxes which we have already signalized as the inevitable outcome of speculation upon such subjects. In his first argument, Parmenides demonstrates that the One is neither in itself nor in anything else, neither at rest nor in motion, neither the same with itself nor different from itself. In his second argument, he demonstrates

that the One is both in itself and in other things, both at rest and in motion, both the same with itself and different from itself. That is, while his first demonstration denies both of two opposite and mutually destructive propositions, his second affirms them both.

There is no doubt that after Plato's time the Greeks felt, though they did not distinctly comprehend, the futility of such inquiries. By the successors of Plato, philosophy was brought into a state of more or less complete scepticism as to the possibility of any trustworthy knowledge whatever. "We assert nothing, not even that we assert nothing," was the extravagant dictum of one of the later schools of Greek philosophy.[1] And finally philosophy ceased from its independent inquiries, being merged in theology by Proklos, who, hopeless of attaining absolute knowledge by any exertion of the intellectual powers, was driven to assert the existence of a divine supernatural light, by which the soul being irradiated might thus alone catch glimpses of the external reality.

The later career of philosophy furnishes us with the same kind of illustrations as its earlier

[1] [See Windelband's *History of Philosophy* (Tufts' Translation), p. 202. See also Zeller, *Philosophie d. Griechen*, Th. III. Abth. II. p. 59 (3d ed.). The position in question is that of Pyrrho, Ænesidemus, Sextus Empiricus, and their group of sceptics.]

stages. After its revival in the Middle Ages, philosophy again proceeded to treat of the same kind of questions as those which had baffled the keenest and most subtle intellects of antiquity. In the eager scrutiny of the nature of things, the scholastic metaphysicians thought little of ascertaining the relations of coexistence and succession among phenomena. Their disputes were about quiddities, entities, occult virtues, and efficient causes. Nor in modern times do we find that philosophy has been at all disposed to recognize the limits which we have here found ourselves obliged to impose upon it. On the other hand, modern metaphysicians have generally proceeded upon the tacit assumption that the possibilities of thought are coextensive with the possibilities of things, and that any train of propositions which can be clearly conceived and logically concatenated, must be true. It was upon this assumption that Malebranche founded his theory of Occasional Causes, and Leibnitz his doctrine of Pre-established Harmony. It was upon this that Spinoza constructed a theory of the universe, the most gigantic in conception, and the most unflinchingly logical in execution, of all metaphysical theories. Upon this also rests the Kantian doctrine of Necessary Truths;[1]

[1] [It might be objected that Kant did not assume "that the possibilities of thought are coextensive with the possibili-

and upon this most treacherous foundation has been more recently built the lofty but unstable structure of Hegelism.

Since Bacon's time, it is true, there have appeared — for the most part in England — a number of eminent thinkers, who, asserting the relativity of human knowledge, and avowedly renouncing the attempt to solve the mysteries of objective existence, have occupied themselves with psychological problems. To these thinkers — Hobbes, Locke, Berkeley, Hume, Hartley, Brown, James Mill, Hamilton, and Mansel — a large proportion of the conceptions now current and dominant in philosophy are due. Nevertheless, as we shall see by and by, even these philosophers have not always made their practice coincide with their preaching. Though they have asserted, and were indeed the first to assert clearly, the doctrine of the Relativity of Knowledge, they did not always carry in their minds its full import; and were betrayed not infrequently into making statements which imply that the possibilities of thought are coextensive with the possibilities of things.

It may appear, therefore, that in our rigorous denial of the possibility of absolute knowledge, we shall not have the countenance of the most eminent philosophers who have lived. It

ties of things." But Fiske gives (after Lewes) a fuller statement of Kant's position below, p. 59.]

may be thought that their works will testify against us. We shall perhaps be accused of regarding the noble labours of so many generations of gifted thinkers as a mere impracticable striving after that which no striving can procure, — as the crying of infants for the moon, or as the groping of the alchemist for the philosopher's stone. And it will no doubt be indignantly asked, by what title do we pretend to philosophize at all? In rejecting as forever insoluble so large a proportion of the inquiries with which philosophy has until lately busied itself, do we not virtually declare philosophy to be antiquated and useless?

To neither of these accusations can we consent to plead guilty. In replying to the first, it may indeed be granted that those who rigorously maintain that Absolute Being is unknowable, will naturally regard the labours of Plato and Spinoza and Hegel as a vain seeking after that which cannot be found. But it does not follow that such seeking is to be condemned as worthless. It was only after many attempts had failed, that we could learn that the failure was due not to curable but to incurable weakness.[1]

1 "The study of the master minds of the human race is almost equally instructive in what they achieved and in what they failed to achieve; and speculations which are far from solving the riddle of existence have their use in teaching us why it is insoluble." — Mansel, *Metaphysics*, p. 23.

It was only after all possible devices of attack had proved fruitless, that we could realize the truth that we had been assailing an inexpugnable fortress. Had we not been taught by many a bitter defeat, we should never have learned the real extent of our powers. Had not metaphysics reared many an apparently solid edifice, which fell into unshapely ruin at the first rude blast of criticism, psychology might never have troubled itself to examine the soil upon which all such edifices must be founded. Nay, it may be truly said, that though philosophers have failed in what they have consciously attempted, they have nevertheless unwittingly achieved a result greater than any of those which they have sought to obtain. By their long career of heroic defeat, they have furnished us with a concrete demonstration, almost superfluously ample, of the relativity of human knowledge. By exhausting all possible hypotheses respecting the objective reality, they have made it apparent that no tenable hypothesis can be framed. In the very failure to obtain one kind of truth, they have demonstrated for us a truth of another sort, — a truth which must for the future lie at the bottom of all successful research. Is not this then a worthy result? Remembering how steep and laborious is the path of human progress, is not the definite establishment of one fundamental truth like the Relativity of Know-

ledge an achievement worthy to crown the efforts of twenty-five centuries? Shall it take two or three generations of weary experimenting to bring into existence some incarnation of material force like the steam-engine, and may it not take a hundred generations for the human mind to ascertain for itself experimentally what it can know and what it cannot know?

To the second accusation we may return a straightforward denial. In asserting the impossibility of acquiring absolute knowledge, or of ascertaining aught respecting the nature of mind and matter and the origin of the universe, we do not dethrone Philosophy; we do not condemn it as antiquated and useless; we do not leave it nothing with which to occupy itself. On the contrary, we do but enthrone it more securely than ever; and we leave it in possession of quite as goodly a realm as that in which our metaphysical predecessors would fain have established it.

In order to show how this can be true, it will be necessary for me to define, somewhat at length, the Scope of Philosophy, — to indicate the nature of the inquiries with which philosophy may profitably be concerned. And since philosophy may be correctly though rudely defined as a kind of knowledge, it will first be desirable to indicate the essential distinctions between the different orders of knowledge, — to show in

what respect philosophy differs from science, and in what respect both philosophy and science differ from that comparatively imperfect kind of knowledge which is the common property of uncultivated minds.

Though science has been often vaguely supposed to be something generically distinct from ordinary knowledge, yet the briefest consideration will suffice to show us that this is not the case, but that scientific knowledge is only a higher development of the common information of average minds. In the first place we shall see that the process gone through, and the results attained by the process, are not generically different in scientific and in ordinary thinking.

All knowledge whatever is, as we have seen, a classification of experiences. No intelligence or intelligent action is possible unless the distinctions among surrounding phenomena be detected and registered in the mind. Even the lowest animal can only preserve its existence on condition that different external agencies shall affect it in different ways, — that different sets of circumstances shall cause it to put forth correspondingly different sets of correlated actions. Perhaps it is sufficient for these simply constituted creatures to distinguish between the organic and inorganic matters present in their environment, or between light and

darkness, as we see a fresh-water polyp seek the darkest corner of a vessel exposed to direct sunlight. Among the higher animals possessed of developed organs of sense and of relatively complex nervous systems, the classifying process is carried to much greater completeness. Along with a tolerably wide set of distinctions between various classes of plants and weaker animals that are more or less useful and desirable as food, and between various classes of inorganic phenomena that are serviceable or dangerous, and of stronger animals that are to be dreaded as enemies, — there is also a clear perception of the distinct modes of action involved in the acquisition of desired objects, and in the escape from menacing dangers; forming an aggregate of knowledge which implies quite an extensive comparison and classification of experiences. Besides all this, there is a set of special distinctions between special orders of phenomena, — between the various kinds and degrees of sound, odour and temperature, — which in some cases exceed in discriminative accuracy any of the corresponding empirical distinctions which the human mind is able to recognize. And in the dog, who has from time immemorial been the friend and servant of man, there is superadded to all this a rudimentary moral classification of actions as praiseworthy or blameworthy; as is seen, for instance,

in his guilty attitude when detected in committing a raid upon some neighbouring sheepfold. Coming lastly to man, but little illustration will be needed to show that his acquisition of knowledge is in like manner the progressive establishment of distinctions. The supremely important knowledge which we acquire during early infancy consists in the mental grouping of objects according to their various properties; in the gradual recognition of distinctions between hardness and softness, sweetness and acidity, rigidity and elasticity, roughness and smoothness, humidity and dryness, roundness and angularity, — between various shades and intensities of temperature, of sound, and of colour, — between matter which resists and space which does not resist. Later in life, our intellectual education consists still in the progressive grouping of experiences. That portion of it which we habitually designate as practical consists in the more and more complete distribution of ends (as variously desirable or undesirable), and of the relations between ends and means; while the education which we more especially characterize as theoretical consists in the more and more complete distribution of our acquired notions into well-defined groups, mathematical, physical, or physiological, legal or ethical. He who has so distinctly classified his experiences of the connections between certain courses of

action and the resulting feelings of happiness or misery that he can usually decide upon any line of conduct with a clear perception of its consequences, is what we call a prudent man, or a man of sound judgment. While, as Mr. Mill has somewhere observed, that man is most completely educated who has the clearest sense of the connotations of the words which he uses; who understands most thoroughly and feels most keenly the fine shades of distinction between allied groups of conceptions, which less perfectly educated persons are liable to confuse together and to reason about as if they constituted but a single group. Such a man possesses what Sainte-Beuve calls the sense of *nuance;* an intellectual characteristic which is perhaps nowhere more habitually exemplified than in the charming pages of that most consummate of critics.

And this leads me to observe — what indeed the whole of the above survey implies — that since knowledge is classification, the completeness of the classification varies with the degree of intelligence. Minds in a low stage of development can distinguish only between widely contrasted phenomena. The classifications of which they are capable consist of but few groups, indefinite in their extent and incoherent in their materials; while the progressive increase of intelligence consists in the progressive estab-

lishment of sub-classes of phenomena, that are continually less and less widely contrasted, that are more and more accurately defined in their limits, and more and more coherent in their materials. And the ultimate perfection of knowledge would be the recognition of all the distinctions which exist between phenomena, and the consequent establishment of classes whose members would be completely alike among themselves, while unlike the members of all other classes. Manifestly such knowledge would be, in the fullest sense of the term, scientific knowledge; which is thus seen to be merely a higher and more complex development not only of the knowledge of ordinary matters which we do not regard as scientific, but of the rudimentary knowledge possessed by infants, by savages, and by the lower animals. The dog or lion has no doubt established in his mind the distinction between the bright sky of day, illuminated by a single dazzling orb, and the pale sky of night, spangled with a multitude of twinkling points. The savage who in his nocturnal prowlings guides himself by the stars has rudely classified these objects in their relations of position. The shepherds of Mesopotamia and the agriculturists of Attika superadded the distinctions between stars which regularly traverse the same apparent paths and stars which pursue an erratic course; and in their classifications of

stars according to their times of rising and setting we have an example of a rudely scientific method of proceeding. Finally by the modern astronomer the heavenly bodies are minutely classified according to their mutual relations as suns, planets, or satellites; according to their visible magnitudes, or the angles which they subtend on the field of vision; according to their orbital courses, their angular velocities, their axial inclinations, their specific gravities, etc., wherever these have been ascertained; and lately in some few instances according to their physical constitutions, in so far as light has been thrown upon this point by spectrum analysis. In like manner the lowest savage has noted the wide contrast between plants and animals; and in each of these great groups has furthermore made sub-classes comprising respectively those which are useful as food or as medicine for wounds, and those which are to be shunned as poisonous or otherwise dangerous. While, on the other hand, the scientific naturalist divides and subdivides until he acquires distinct conceptions of thousands of species of insects, and ranks trees in separate classes according to the myriad-fold shapes of their leaves, the spiral arrangement of their branches, the number of their cotyledons, or the mode of disposition of their woody fibre.

All this will appear in a still clearer light

when we remember that the various processes which we habitually group together under the name of "reasoning" are all of them acts of classification. "The savage, having by experience discovered a relation between a certain object and a certain act, infers that the like relation will be found in future cases." . . . When in consequence of some of the properties of a body, we attribute to it all those properties in virtue of which it is referred to a particular class, the act is an act of *inference*. "The forming of a *generalization* is the putting together in one class all those cases which present like relations; while the drawing a *deduction* is essentially the perception that a particular case belongs to a certain class of cases previously generalized. So that, as classification is a grouping together of *like things*, reasoning is a grouping together of *like relations* among things. And while the perfection gradually achieved in classification consists in the formation of groups of *objects* which are completely alike, the perfection gradually achieved in reasoning consists in the formation of groups of *cases* which are completely alike."[1]

Since knowledge consists in classifying, it follows conversely that ignorance consists in inability to classify — in the failure to group

[1] Spencer's *Essays*, 1st series, p. 189. [Library Edition, vol. ii. p. 33.]

together similar phenomena; and that error consists in wrongly classifying, in the grouping together of phenomena which are really distinct. When we say that a child is ignorant that nitric acid will burn, we mean that he has never ranked together the like cases of a finger immersed in nitric acid and a finger thrust against heated metal. When we say that the ancients were in ignorance concerning the force which keeps the planets in their orbits, we mean that they did not know what that force is like — that they had never grouped together the like cases of the earth attracting the moon and the earth attracting an apple. And when we say that they were in error in attributing the moon's motion to the volition of a presiding goddess, we mean that they grouped together the unlike cases of the motion of a heavenly body through the sky and the motion of a chariot driven by its charioteer along the ground. So when we say that we do not fully understand the coronal flames and other singular phenomena presented by the eclipsed sun, we mean that we have not yet entirely succeeded in grouping them with other phenomena of which we have heretofore had experience. And when we say that we cannot now or at any future time know the Absolute, we mean that there is not now, and never can be, anything given in our experience with which we can classify it.

Having thus, at the risk of tediousness, shown in detail the essential identity of the processes involved in science and in ordinary knowledge, let us go on to enumerate the respects in which science differs from ordinary knowledge, bearing in mind as we proceed that such distinctions can only hold good to a certain extent. They are not differences of kind, but differences of degree.

In the first place we may say that science differs from ordinary knowledge in its power of *quantitative prevision* — of assigning beforehand the precise amount of effect which will be produced by a given amount of cause. Mere prevision is not, as is sometimes assumed, peculiar to science. We frequently hear it assigned, as the distinguishing characteristic of scientific knowledge, that it enables us to predict; and the infallibility of the predictions of science is commonly alluded to as among its greatest triumphs. Nevertheless, when the schoolboy throws a stone into the air, he can predict its fall as certainly as the astronomer can predict the recurrence of an eclipse; but his prevision, though certain, is rude and indefinite. The servant-girl has no need of chemistry to teach her that, when the match is applied, the fire will burn and smoke ascend the chimney; but she is far from being able to predict the proportional weights of oxygen and carbon which

will unite, the volume of the gases which are to be given off, or the intensity of the radiation which is to warm the room. Her prevision is qualitative, not quantitative in its character: she can foresee the kind of effect, but not its amount.

A moment's reflection, however, will show us that this statement, as it stands, does not convey the whole truth. It is not quite true that our servant-girl can foresee the kind of effect. She can foresee a part of it: she can tell us that the wood will burn, but she will know nothing about the union of oxygen with carbon; and will thus illustrate the superiority of science even with respect to qualitative prevision. On the other hand, she can, after a rude fashion, foresee the amount of effect which will follow her proceedings; since she can, if intelligent, estimate the amount of fuel which will be required to produce a comfortable warmth. So the savage can estimate the amount of tension which he must impart to his bow in order to send his arrow to the requisite distance. Thus we see that, even with respect to quantitative prevision, science can be distinguished from ordinary knowledge only by the superior accuracy and greater extent to which it carries such prevision. Just this same difference of degree between science and ordinary knowledge constitutes also the chief difference between the

more developed and the less developed sciences. The sciences which have arrived at the highest perfection are those which have carried quantitative prevision to the farthest extent. Between astronomy, which can foretell the precise moment at which a solar eclipse will begin a hundred thousand years hence, and meteorology, which cannot surely foretell from week to week the state of the weather, there is an almost immeasurable difference in scientific completeness. The chemist can predict the exact quantity of effect which will be produced by mingling a new substance with any given compound, the properties of which have been studied; while the physiologist cannot surely predict the exact amount of effect which will be produced by a drug that is introduced into the organism; and we accordingly consider chemistry a much more advanced science than physiology. And lastly, let us note that the date which we habitually assign for the commencement of any science is the date at which its previsions began to assume a definitely quantitative character. Dynamics is said to have become a science when Galileo determined the increment of velocity of falling bodies. Chemistry became a science when Lavoisier, De Morveau, and Dalton discovered the exact proportions in which the most important chemical combinations take place. No science of heat was possible until the invention of the ther-

mometer enabled men to measure the degrees of temperature. There was no science of optics until it had been ascertained that the sines of the angles of incidence and reflection or refraction bear to each other a constant ratio. And with Mr. Joule's discovery that a certain number of degrees of heat is equivalent to a certain amount of mechanical motion, there becomes possible a science of thermodynamics which shall express by a single set of formulas the activities of forces hitherto treated as generically different.

The second difference of degree between science and ordinary knowledge consists in the greater *remoteness* of the relations of likeness and unlikeness which science detects and classifies. The child who, when an orange is presented to him, infers that on sucking it he shall experience a pleasant taste; the savage who, finding the half-eaten carcass of a sheep, concludes that a lion has been in the neighbourhood; and Leverrier, who, noticing that the observed motions of Uranus do not coincide with its motions as predicted, suspects the existence of a still remoter planet which disturbs it — go, all of them, through what is essentially the same process. The child has mentally grouped together the attributes of an orange; and when certain members of the group — as the shape and colour — are afterwards presented to his consciousness, there occurs a mental re-

presentation of the remaining member — the agreeable taste. The savage, from direct or hearsay experience, has grouped together many cases of the eating of sheep by lions, and from the presence of a certain number of the customary phenomena, he classifies this new case with his already formed group of cases; he assigns for the phenomenon a cause like the causes which he has known. The astronomer has linked indissolubly in his mind the phenomena of celestial motions with the phenomena of gravitative force, and has grouped many cases in which such force, brought to bear on a planet from different quarters, causes irregularities of motion. When, therefore, in the instance before him, after calculating the resultant of all the known forces in operation, he finds a residuum of motion which is unaccounted for, what does he do? He infers a like force as the cause of the residuary motion; and since there is no force without matter, he infers the existence of planetary matter other than the planetary matter already taken into account. He enlarges his group of cases in which planets perturb each other's courses, by admitting a hypothetical like case; and forthwith proceeds to calculate, from the amount of residuary motion, the size, distance, and orbit of the unknown planet. Nothing can better illustrate the statement that scientific and ordinary knowledge are

alike in kind, while different in degree. While the processes gone through by the child, the savage, and the astronomer are manifestly the same, the immeasurable difference in the complication of the processes is equally manifest. While the inference in the one case is made instantaneously, so as almost to seem a part of the original perception, and while it admits of verification by a series of simple acts — in the other case the inference is one which depends ultimately upon a long chain of dependent propositions, and the task of verifying it mathematically is exceedingly complicated and difficult. Thus to our statement that science differs from ordinary knowledge in the *definiteness* of its previsions, we have to add that it differs also in the *remoteness* and *complexity* of its previsions.

Thirdly, science differs from ordinary knowledge in the greater *generality* of the relations which it classifies; and this continuous increase in generality is one of the most striking characteristics of advancing science. "From the *particular* case of the scales, the law of equilibrium of which was familiar to the earliest nations known, Archimedes advanced to the more *general* case of the unequal lever with unequal weights; the law of equilibrium of which includes that of the scales. By the help of Galileo's discovery concerning the composition of

forces, D'Alembert established for the first time the equations of equilibrium of *any* system of forces applied to the different points of a solid body — equations which include all cases of levers and an infinity of cases besides." But, as Comte observes, "before hydrostatics could be comprehended under statics, it was necessary that the abstract theory of equilibrium should be made so general as to apply directly to fluids as well as solids. This was accomplished when Lagrange supplied, as the basis of the whole of mechanics, the single principle of virtual velocities," — or the principle that whenever weights balance each other, "the relation of one set of weights to their velocities equals the relation of the other set of velocities to their weights."[1] So geometry in ancient times treated of questions relating to particular figures; but since the great discovery of Descartes, it has dealt with questions relating to any figure whatever. So, in the progress of analytical mathematics, we have first arithmetic, which "can express in one formula the value of a particular tangent to a particular curve;" and, at a later date, algebra, which can express in one formula the values of all possible tangents to a particular curve; and, at a still later date, the calculus, which can express in one formula the

[1] [Spencer's Essay on the "Genesis of Science," Library Edition of the *Essays* (Appleton, 1891), vol. ii. p. 59.]

values of all possible tangents to all possible curves.[1]

Fourthly, science is continually more and more clearly differentiated from ordinary knowledge by the continually increasing *abstractness* of the relations which it classifies. This proposition is involved in the preceding one. For clearly the progress towards higher and higher generality is the progress towards a knowledge more and more independent of special circumstances — towards a study of the phenomena most completely disengaged from the incidents of particular cases.

And finally science differs from ordinary knowledge in its higher degree of *organization* — in the far greater extent to which it carries the process of coördinating groups of like orders of relations, and subordinating groups of higher and lower orders of relations. This we habitually regard as such a fundamental characteristic of scientific knowledge that we grant the title of science to some departments of inquiry which possess it, in spite of the fact that the only prevision which is possible in them is neither certain nor quantitative. Take, for instance, the case of biology. If quantitative prevision were the only thing which distinguishes science, we could hardly pretend

[1] Spencer's *Essays*, 1st series, pp. 177–180. [Library Edition, vol. ii. pp. 18–21.]

to possess a science of life. Our power of prevision in biology is for the most part strictly limited to the kind of effect which will follow a given cause; it is seldom, if ever, that we can foretell the precise amount of effect; and even with respect to the kind of effect, we cannot always be sure beforehand. Biology is not an exact science, like chemistry, and perhaps never will be. Nevertheless, biology is such an admirably organized body of truths; its classification, both of objects and of relations, has been carried to such a considerable extent; and the subordination, the mutual coherence and congruity of its verified propositions is so striking; that we should no more think of doubting its claims to be called a science than we should doubt the claims of astronomy.

Thus we may end our comparison of scientific with unscientific knowledge. Along with generic identity between the two, we have noted five points of gradational difference. We have seen that science and common knowledge alike consist in the classification of phenomena in their relations of coexistence and sequence. But we have also seen that science differs from common knowledge in its superior power of quantitative prevision, in the remoteness, the generality, and the abstractness of the relations which it classifies, and in the far more complete mutual subordination and coherence of its groups

of notions. Such are the distinctive marks of science, regarded as a kind of knowledge. What now are the distinctive marks of philosophy, regarded as a kind of knowledge?

The metaphysical philosophers, whose conclusions, methods, and postulates were rejected in the preceding chapter, would have replied to the above question, that philosophy is generically different from science, — that philosophy is the knowledge of the absolute, the infinite, the uncaused, the objective reality, while science is the knowledge of the relative, the finite, the caused, the subjective state, — that while the latter can concern itself only with phenomena, or things as they exist in relation to the percipient mind, the former can aspire to the knowledge of noumena, or things as they exist independently and out of relation to the percipient mind. Such would have been their answer. But we have seen that no such knowledge of noumena is possible, that the very nature of the cognitive process precludes any such knowledge, and that, if philosophy is to be regarded as knowledge at all, it can have no such scope and function as metaphysicians have assigned to it. What scope is there left for philosophy? If, like science and common knowledge, it is nothing more than a classification of phenomena in their relations of coexistence and sequence, what is there left for it to do which science cannot do as well?

We reply that science can, after all, deal only with particular orders of phenomena. No matter how vast the generalities to which it can attain, it only proclaims truths which hold throughout certain entire classes of phenomena. It does not proclaim truths which hold throughout all classes of phenomena. Its widest truths are astronomic, or chemical, or biological truths; they are not Cosmic truths, in the fullest sense of that expression. For by science we mean merely the sciences, — the sum of knowledge obtained by systematic inquiries into the various departments of phenomena. Such knowledge is, after all, only an aggregate of parts, each of which is more or less completely organized in itself; it is not an organic whole, the parts of which are in their mutual relations coördinated with each other. Or, to put the same truth in another form: The universe of phenomena is an organic whole, the parts of which are not really divisible, though we must needs separate them for convenience of study. We find it necessary to pursue separate lines of investigation for gravitative, or thermal, or chemical, or vital, or psychical, or social phenomena; but in reality these phenomena are ever intermingled and interactive. Let us, for example, arrive at the widest possible generalization respecting astronomic phenomena; we have still not constructed a body of doctrine concerning the uni-

verse, but only concerning a portion of it. It is only when the deepest truths respecting physical, chemical, vital, psychical, and social phenomena come to be regarded as corollaries of some universal truth — some truth common to all these orders of phenomena — that such a body of doctrine becomes possible.

Such a body of doctrine is what we call philosophy in distinction from science. While science studies the parts, philosophy studies the whole. While science, in its highest development, is an aggregate of general doctrines, philosophy, in its highest development, must be a Synthesis of all general doctrines into a universal doctrine. When Lagrange, by his magnificent application of the principle of virtual velocities to all orders of mechanical phenomena, fused into an organic whole the various branches of mechanics which had hitherto been studied separately, this was a scientific achievement of the highest order. When Grove and Helmholtz, by showing that the various modes of molar and molecular motion can be transformed into each other, furnished a common basis for the study of heat, light, electricity, and sensible motion, the result, though on the very verge of philosophy, still remained, on the whole, within the limits of science. But when the principle of virtual velocities and the principle of the correlation of forces were both shown to be corol-

laries of the principle of the persistence of force, — were both shown to be necessitated by the axiom that no force is ever lost, — then the result reached was a philosophical result. So when Von Baer discovered that the evolution of a living organism from the germ-cell is a progressive change from homogeneity of structure to heterogeneity of structure, he discovered a scientific truth. But when Herbert Spencer applied Von Baer's formula to the evolution of the solar system, of the earth, of the totality of life upon its surface, of society, of conscious intelligence, and the products of conscious intelligence, then he discovered a truth in philosophy, — a truth applicable not merely to one order of phenomena, but to all orders.

These illustrations, however, do not bring out distinctly enough the point which I am endeavouring to elucidate. The difference between philosophy and science, like the difference between science and common knowledge, is a difference in degree only. But the distinction is nevertheless a broad one, and as such is somewhat understated in the foregoing paragraph, because the examples there cited on the side of science are all taken from that transcendental region of science in which its problems begin to have implications almost as universal as the problems of philosophy. Thoroughly to estimate the character of the distinction, we shall

do well to start somewhat further down, and note what the science is which is contained in text-books or in original monographs. Viewed from this standpoint, a science like biology, for example, has for its subject-matter questions concerning the changes undergone by starch or fibrine within the stomach, the distribution of cells and fibres in the tissue of the brain, the relations of blood-supply to the functional activity of any organ, the manner in which the optic nerve is made to respond diversely to rays of different refrangibility impinging upon the retina, or the growth of bone from sundry centres of ossification starting here and there in the primitive cartilage; or again such questions as concern the generic or ordinal relationships of barnacles, or bats, or elephants, the homologies between a bird's wing and a dog's foreleg, the geographical distribution of butterflies, or ferns, or pine-trees, the typical structures of vertebrates or annulosa, or the kinships between fossil forms of the horse and pig. In these questions, and a thousand others like them, we see at once that we are in the special domain of biology, and that our reasonings belong unmistakably to science, and not to common knowledge on the one hand, or to philosophy on the other. If now, after mastering countless details of this sort, we go on to inquire into the cause of the bilateral symmetry of lobsters and centi-

pedes, or of the spiral arrangement of leaves around a stem; if we seek to generalize the phenomena of heredity, or hybridity, or adaptation, or, if we endeavour, with Mr. Darwin, to determine the agency of natural selection in modifying the characteristics of species; we are still no doubt within the territory of science, but we have arrived at a region in which the inquiries take so wide a sweep, and the results have so immediate a bearing upon other inquiries outside of biology, that our study may seem to demand some especially descriptive name. Accordingly we find the phrase "transcendental biology" employed by French writers, and elsewhere we meet with the significant title "philosophical biology." Still more significantly Mr. Spencer, whose treatise on biology is occupied with researches of this high order, speaks of them as constituting a domain of "special philosophy." That is to say, just where this science has reached the widest *generality* consistent with its being called biology at all, it is characterized as a *special* kind of philosophy. But one more step is needed to reach the level of that philosophy which need not be qualified as special. If, pursuing the same line of advance, we proceed, — as I shall hereafter do, — with the aid of the most general principles of heredity, adaptation, and natural selection, to elucidate some comprehensive theory of life;

and if we contemplate this theory of life, on the one hand, as dependent on certain universal laws of matter, motion, and force, and on the other hand, as furnishing a basis for sundry doctrines relating to intellectual, moral, and social phenomena; then we have clearly come into the domain of philosophy, strictly so called. And the result would have been the same had we started from astronomy, or physics, or any other science; save that nowhere else, perhaps, could the true character of the process have been so fully illustrated as in the case of biology — the great central science upon the theorems of which so closely depend the views which we must hold concerning ourselves and our relations to the universe about us.

That such transcendental inquiries as those last mentioned belong strictly to philosophy, and constitute the all-essential part of it, can be questioned by none save those who, with Hegel, would make philosophy synonymous with ontology. Upon these it is incumbent, if they would establish their position, to dispose of the facts and reasonings which have made the relativity of all knowledge the fundamental theorem of modern psychology. For us it may suffice to point out that the province of philosophy, as here defined, includes all such inquiries into cosmology, into psychology and ethics and religion, as philosophers have occupied themselves

with in the past, excepting those only in which the necessary limitations of human thinking have been expressly or tacitly ignored. Far from dethroning philosophy, we are assigning to it a scope as wide as was recognized for it by the early Greeks; while in approaching its problems, we are enabled to profit by that physical investigation which Sokrates not unjustly stigmatized, in his own day, as hopelessly misleading, but which now, conducted upon sounder methods, is our surest guide to the knowledge of truth.

Thus is philosophy vindicated, and its function is seen to be as important as that of science. Rejecting, as we were compelled to do, the metaphysical assumption that philosophy is a kind of knowledge generically distinct from all other kinds, and asserting for it a common root with science and with ordinary knowledge, we have nevertheless seen that it differs from the two latter, much in the same way that the one of them differs from the other. Accurate quantitative prevision is, in the nature of things, confined to the most special of the special inquiries with which science is concerned. Limited as it is to individual cases occurring under general laws, it must be left on one side in enumerating the distinctive features of philosophy. But from what has been brought forward, it at once appears that philosophy differs from

science in the greater generality, abstractness, and remoteness of the relations which it formulates, and also in its larger and more complex organization of general truths into a coherent system. Or, to sum up by a set of rough and general, though not severely accurate, contrasts (which, after all the foregoing explanation, we may safely do): Common Knowledge expresses in a single formula a particular truth respecting a particular group of phenomena; Science expresses in a single formula a general truth respecting an entire order of phenomena; Philosophy expresses in a single formula a universal truth respecting the whole world of phenomena.

Philosophy therefore remains, as of old, the study of the Cosmos — save that it is the study of phenomena, not of noumena; of evolution, not of creation; of laws, not of purposes; of the How, not of the Why.

CHAPTER III

THE TEST OF TRUTH[1]

HAVING now indicated the limits of human knowledge, and marked out the province of that most highly organized kind of knowledge called philosophy, it becomes us next to inquire what are the sources of knowledge, and what is its guaranty? What is the test of truth which our philosophy shall recognize as valid? And first, what is Truth?

Truth may be provisionally defined as the exact correspondence between the subjective order of our conceptions and the objective order of the relations among things. Now since by the very constitution of the knowing process we are debarred from knowing things in themselves, since our highest philosophy must forever concern itself with phenomena and can never hope to deal with objective realities, the question arises, how can we ever ascertain the objective order of the relations among things? How can we compare this objective order with the subjective order of our conceptions? And without such comparison, how can we ever be certain that

[1] [See Introduction, § 9.]

the two orders correspond? Can we then ever hope to possess an objective canon of truth? And if we cannot obtain any such canon, are we not irresistibly driven to Idealism or to Scepticism, — to the philosophy which denies the existence of any objective reality, or to the philosophy which denies that truth can be attained at all?

Such questions as these have arisen whenever in the long career of philosophic inquiry an approach has been made toward demonstrating the relativity of knowledge. They dictated the criticisms of Leibnitz upon Locke's doctrine that all knowledge is the result of experience. The Cartesians had postulated the existence of innate ideas; a postulate which was destroyed when Locke showed that there can be no ideas until the mind has come into contact with environing agencies. But to Locke's reassertion of the scholastic formula, *Nihil est in intellectu quod non prius in sensu*, Leibnitz added the important qualification, *nisi intellectus ipse*. Rejecting, equally with Locke, the Cartesian doctrine of innate ideas, recognizing fully that there can be no knowledge until the mind has been awakened into activity by the presence of objects to be cognized, Leibnitz nevertheless maintained that in each act of cognition there is an element furnished by the mind as well as an element furnished by the environment, — that the subject is not passive, but coöperates actively with the object. In all this,

let us note, there is nothing that conflicts with the established doctrine of the relativity of knowledge. It will be remembered that in our first chapter the necessary coöperation of subject and object in every act of cognition was shown to be one of those very facts which enforce the conclusion that all knowledge is of the Relative. No competent psychologist would now subscribe to the Lockian opinion that previous to the reception of experiences the mind is like a blank sheet. Physiology has taught us better than that,—has taught us that mind is strictly correlated with a complex nervous system, which, according to minute peculiarities of organization, modifies the experiences resulting from its intercourse with environing agencies. We therefore recognize as fully as Leibnitz, that the subject actively coöperates with the object in each act of consciousness. And we insist that, *for that very reason*, our knowledge, being the product of subjective and objective factors, can never be regarded as a knowledge of the objective factor by itself. This is, indeed, the import of our illustration, above given, from the phenomena of vibratory motion. Since a homogeneous phenomenon, like the undulation of molecules, can produce in us such heterogeneous states of consciousness as the feelings of sound, heat, of colour, we argued that the constitution of the percipient mind must modify in every case the character of the phe-

nomenon perceived ; and that, *therefore*, the phenomenon cannot be regarded as like the external noumenon, its part-cause. What is this but saying, with Leibnitz, that the subject actively coöperates with the object in each act of conscious knowledge? The Leibnitzian criticism, therefore, only serves to bring out in a stronger light the doctrine that all knowledge is of the Relative. Though powerful against the hypothesis of Locke, it is powerless against the position held by modern psychology.

Such a result, however, was the farthest possible from Leibnitz's thoughts. Far from intending to reinforce the doctrine of relativity as shadowed forth in the writings of the Lockian school, his object was to crush it at the start by showing that we can obtain a criterion of absolute or objective knowledge. And he accordingly gave to his statement an interpretation quite inconsistent with the doctrine of the relativity of knowledge as we are now obliged to hold it. He held that in many acts of cognition, the mind contributes an element of certainty which could never have been gained from experience, which could never have flowed from the intercourse of the mind with its environment; and that propositions obtained by such acts of cognition are Necessary Truths, — truths which are true of the objective order of things as well of the subjective order.

After Hume, by drawing out the Lockian doctrine to its extreme corollaries, had enunciated a set of conclusions which deny all that the doctrine of relativity explicitly denies, but which differ from the doctrine of relativity in ignoring what the latter implicitly asserts, the Leibnitzian theorem was again taken up by Kant, who made it his own by his manner of illustrating it, and whose arguments on this topic still carry conviction to the minds of many able metaphysicians. The immense importance of Kant's views makes it desirable for us to give them some farther consideration than is implied in merely stating them.

In the first place, it must be borne in mind that Kant maintained, no less stoutly, and perhaps no less consistently, than Hume, the doctrine of the relativity of all knowledge. As Mr. Lewes truly observes, "the great outcome of the 'Kritik' was a demonstration of the vanity of ontological speculation." Kant would have repudiated Schelling and Hegel, as he did in fact openly repudiate the claims of Fichte to be considered his legitimate successor and expounder. It was Kant who first showed that every hypothesis which we can frame respecting the Absolute, the Infinite, the First Cause, or the ultimate essences of things, must inevitably commit us to alternative impossibilities of thought. It was Kant also who showed psychologically,

from the necessary coöperation of subject and object in each act of cognition, that a knowledge of the pure object as unmodified by the subject is forever impossible. Kant held that a phenomenon, inasmuch as it is an appearance, presupposes a noumenon, — a thing *which appears*, — but this noumenon, which is a necessary postulate, is only a negation to us. It can never be positively known; it can only be known under the conditions of sense and understanding, *ergo*, as a phenomenon. "And accordingly," says Kant, "though the existence of an external world is a necessary postulate, its existence is only logically affirmed." Of its existence out of relation to our consciousness we can know nothing; and it consequently appears that "we can never predicate of our knowledge that it has objective truth."[1] Even so, reiterates Kant, in the introduction to the "Kritik," "to attempt to transcend the sphere of the subjective is vain and hopeless; nor is it wise to deplore that we are 'cabin'd, cribbed, confined' within that sphere from which we never can escape. As well might the bird, when feeling the resistance of the air, wish that it were *in vacuo*, thinking that there it might fly with perfect ease. Let us therefore content ourselves with our own kingdom, instead of crossing per-

[1] Lewes, *History of Philosophy*, 3d edition, vol. ii. pp. 471, 472.

ilous seas in search of kingdoms inaccessible to man."

Up to this point we may regard Kant as equally with Hume the precursor of the modern philosophy of relativity. In the above conclusions there is little to which Hume would have objected. But when we come to examine the Test of Truth set up by the two great adversaries, the point of irreconcilable antagonism between them becomes apparent. Though conducted with a wider historic experience, and with more extensive psychologic resources, the combat was essentially the same which had been waged in the preceding epoch between Leibnitz and Locke. Hume had said, the sole criterion of truth is uniformity of experience; that to which human experience has invariably testified, we are compelled to accept as true; though it may not be true of the pure objective order of things, it is true for us, — true of the order of things as presented to our intelligence. Kant, on the other hand, distinguished between contingent and necessary truths; and asserted that while uniformity of experience is a sufficient criterion of contingent truth, it is not a trustworthy criterion of necessary truth. For experience, says Kant, can tell us that certain phenomena always occur in certain relations; but it cannot tell us that they *must* always so occur. Uniformity of experience cannot assure us that two

and two must make four, or that two straight lines cannot enclose a space. We cannot conceive that these things should be otherwise, and we must therefore know them, independently of experience, and by the very constitution of our minds. This element of necessity and universality is the element which the mind furnishes in the duplex act of cognition.

This theorem contains two assertions, the one implicit, the other explicit. It asserts implicitly that the subjective element in cognition can be isolated from the objective element, at least so far as to be independently defined. It asserts explicitly that absolute uniformity of experience is inadequate to produce in us the belief in the necessity of any given relation among phenomena. With reference to the first of these assertions, I shall be content with citing the excellent remarks of Mr. Lewes: —

"There was an initial misconception in Kant's attempt to isolate the elements of an indissoluble act. It was one thing to assume that there are necessarily two coefficients in the function; another thing to assume that these could be isolated and studied apart. It was one thing to say, Here is an organism with its inherited structure, and aptitudes dependent on that structure, which must be considered as necessarily determining the forms in which it will be affected by external agencies, so that all ex-

perience will be a compound of subjective and objective conditions; another thing to say, Here is the pure *a priori* element in every experience, the form which the mind impresses on the matter given externally. The first was an almost inevitable conclusion; the second was a fiction. Psychology, if it can show us anything, can show the absolute impossibility of our discriminating the objective from the subjective elements. In the first place, the attempt would only be possible on the ground that we could, at any time and in any way, disengage Thought from its content; separate in Feeling the object as it is out of all relation to Sensibility, or the subject as pure subject. If we could do this in one instance, we should have a basis for the investigation. The chemist who has learned to detect the existence of an acid by its reactions in one case can by its reactions determine it in other cases. Having experience of an acid and an alkaloid, each apart from the other, he can separate them when finding them combined in a salt, or he can combine them when he finds them separate. His analysis and synthesis are possible, because he has elsewhere learned the nature of each element separately. But such analysis or synthesis is impossible with the objective and subjective elements of thought. Neither element is ever given alone. Pure thought and pure matter are unknown quanti-

ties, to be reached by no equation. The thought is necessarily and universally subject-object—matter is necessarily, and to us universally, object-subject. Thought is only called into existence under appropriate conditions; and in the objective stimulus, the object and subject are merged, as acid and base are merged in the salt. When I say that the sensation of light is a compound of objective vibrations and retinal susceptibility, I use language which is intelligible and serviceable for my purpose; but I must not imagine that the external object named vibration is the *Ding an sich*, the pure object out of all relation to sensibility; nor that the retinal susceptibility is pure subject, involving no vibratory element. Kant himself would assure me that the vibrations were as subjective as the susceptibility. Indeed, seeing that he denied altogether the possibility of a knowledge of pure object, the *Ding an sich*, it was a violent strain of logic to conclude that in thought he could separate this unknowable object from the subject knowing it."[1]

A violent strain of logic it was, no doubt. After proving, almost to superfluity, that subject and object are inseparably united in each act of cognition, and after triumphantly using this fact against the ontologists who pretended

[1] Lewes, *History of Philosophy*, 3d edition, vol. ii. p. 483.

to a knowledge of the objective reality in itself, Kant turns around and tells us that we may after all acquire a knowledge of the subjective reality in itself! Though we can never determine what the environment furnishes in the duplex act of cognition, we can none the less determine exactly what the mind furnishes. By this wonderful inconsistency Kant opened the way for the later German idealism. Through this inlet entered Fichte, Schelling, and Hegel, with their swarm of mediæval conceptions, to perturb the onward course of philosophy. Kant might in vain protest. It was in vain that "he showed that the subjective *a priori* nature of these truths was peremptory proof of their objective falsehood; that they could not be truths of things, precisely because they were purely subjective conditions of thought." Once granted that the subject could of itself possess truth independent of experience, independent of intercourse with the objective environment, the inference was inevitable that the subject might impose its necessities upon the object, that the possibilities of thought might be rendered coextensive with the possibilities of things. Thus Kant, after laboriously barring out ontology at the main entrance, carelessly let it slip in at the back door. Thus, by admitting the possibility of arriving at truth otherwise than through experience, did he render nugatory his elabo-

rate demonstration of the relativity of knowledge.[1]

This will appear still more evident as we proceed to examine the second portion of Kant's theorem, — the assertion that uniformity of experience, however long continued, can never afford us a sufficient guaranty of necessary truth. The argument here is at first sight a plausible one. Any particular experience can only tell us that a phenomenon, or a relation between phenomena, is thus and thus; not that it *must* be thus and thus. And any number of experiences can only tell us that certain phenomena have hitherto always occurred in certain relations; not that they must always and forever occur in the same relations. Or, as Dr. Brown phrases it, " Experience teaches us the past only, not

[1] " The truth is," says Mr. Lewes in his new work just now appearing, " Kant tried to hold contradictory positions. The whole drift of his polemic against the ontologists was to show that knowledge was limited, relative, and could not extend beyond the sphere of possible experience; but while thus cutting the ground from under the ontologists, he was also anxious to cut the ground from the sensationalists and sceptics, and therefore tried to prove that the Mind brought with it an *a priori* fund of knowledge." — *Problems of Life and Mind*, vol. i. p. 453. In the present chapter I quote by preference from Mr. Lewes, because it seems to me that he has illustrated both the strength and the weakness of Kant's position (and thus, virtually, of all modern metaphysics) more thoroughly and more clearly than any other critic.

the future." Let us take as an illustration our belief that every event must universally and necessarily have a cause, — that no change can ever take place anywhere without an antecedent. This is what the Kantian would call a necessary truth. And the Kantian would say, All that experience can tell us is, that in an immense number of instances, and in an immense number of places, every event which has occurred has had a cause. It cannot tell us that in all future instances, and in all places throughout the universe, every event must have a cause. To test such a belief by experience would require that our experience should be extended through infinite time and infinite space, which is, of course, impossible. Without such infinite and eternal experience we can never be sure but sooner or later, somewhere or other, some event may happen without a cause, and thus overturn our belief. Nevertheless, we have such a belief — an invariable and invincible belief. And since our limited experience cannot have produced such a belief, it must have arisen in us independently of experience; it must be necessitated by the very constitution of our thinking minds; and must therefore be universally and necessarily true. Such is the Kantian argument.

Upon all this it is an obvious comment that, if the belief in the universality of causation is an inherent belief necessitated by the very con-

stitution of our thinking minds, it is a belief which ought to be found wherever we find a thinking mind. It is hardly necessary to say that this is not the case. Children, savages, and other persons with undeveloped powers of reasoning believe in particular acts of causation, but not in the universality of causation — a conception which is too abstract for their crude intelligence to grasp. Nay, I have known educated people who maintained that there might be regions of the universe where the law does not hold, and who thought it hardly safe to deny that even on our own planet events might occasionally happen without any determining antecedent. Besides which, all those who still accept the doctrine of the so-called "Freedom of the Will," implicitly, and sometimes explicitly, assert that the entire class of phenomena known as volitions are not causally determined by groups of foregoing circumstances. The belief in the universality of causation was certainly not prevalent in antiquity, or in the Middle Ages: its comparative prevalence in modern times is due to that vast organization of experiences which we call physical science; and even at the present day it is not persistently held, except by those who are accustomed to scientific reasoning, or to the careful analysis of their own mental operations.

But this argument does not strike to the root

of the matter, for though the belief in the universality of causation is not a universal belief, the belief in its necessity in each particular case is undoubtedly universal. And, as we have seen, the Kantian denies the power of accumulated experience to produce the belief that the future must inevitably resemble the past. He reminds us that for many ages it was supposed that all swans were white, until finally swans were discovered in Australia which were not white; and he asks what better warrant can uniformity of experience give us than it gave in this case. If after three thousand years a black swan turns up, must we not suppose it possible that in three thousand years more we may see a candle burn in an atmosphere of pure nitrogen?

In answering this query, let us begin by observing that in many cases, the mere accumulation of experiences is a matter of but little consequence. A child believes, after one experience, that fire will burn. When the chemist has shown, by a single experiment, that nitrogen will not support combustion, we believe that it will be just the same through all future time. If we withhold our assent, "it is from a doubt whether the one experiment was properly made, not whether if properly made it would be conclusive."[1] Here, then, as Mr. Mill says, "is a general law of nature inferred without hesitation

[1] Mill, *System of Logic*, vol. i. p. 352.

from a single instance; a universal proposition from a singular one. Now mark another case, and contrast it with this. Not all the instances which have been observed since the beginning of the world, in support of the general proposition that all crows are black, would be deemed a sufficient presumption of the truth of the proposition, to outweigh the testimony of one unexceptionable witness who should affirm that in some region of the earth not fully explored, he had caught and examined a crow, and had found it to be gray."

What is the explanation of this difference? "Why is a single instance in some cases sufficient for a complete induction, while in others myriads of concurring instances, without a single exception known or presumed, go such a very little way towards establishing a universal proposition?" The solution is to be sought in the extreme complexity of the conditions in the one case as contrasted with their extreme simplicity in the other. The scientific thinker does not consider blackness a necessary attribute of a crow, because he believes that some inappreciable variation in the nutrition of the bird, by altering the deposit of pigment in the feathers, might give us a gray or a white crow instead of a black one. Or if we do not reflect upon the matter so carefully as this, we at least regard a crow as a very complex aggregate of conditions

and results, and find no difficulty in imagining that some of the conditions varying might affect the sum-total of results. Or if this also be taken to imply too much conscious philosophizing in us, it is undeniable that our conception of a crow, as of any other vertebrate, is made up of a large number of conceptions, of which the conception of blackness is not the one upon which the specific identity of the sum-total depends. We have had experience of bay and of sorrel horses, of black and of white bears, of gray and of tortoise-shell cats; and, in accordance with such experience, we find it perfectly easy to regard any other animal as varying colour while retaining its specific identity. Our belief that all crows are black rests, therefore, upon purely negative evidence, — upon the absence of any experience of crows that are not black; and no amount of negative evidence can outweigh a single well-established item of positive evidence.

Quite otherwise would it be if our explorer should assert that he had discovered crows destitute of a vertebrate skeleton. We should reply, with confidence, that in the absence of such a skeleton the animal in question could not have been a crow. And the justice of the reply becomes apparent when we turn to the case of the nitrogen, where the conditions are so simple that we can keep them all in mind at once, and

where we can imagine no variation which shall not at once alter the whole character of the case. We cannot imagine nitrogen supporting combustion, for as soon as it did so it would cease to be nitrogen. That A is A, is an identical proposition only when the attributes of A are constant. Now the incapacity to support combustion is one of the attributes by the possession of which nitrogen is nitrogen. And to say that nitrogen may at some future time support combustion, is to say that A will cease to be A, and become something else.

Now why are we compelled to think thus? *Because we are incapable of transcending our experience.* Our experience of nitrogen is that it will not support combustion, and we are incapable of imagining it to be otherwise in contradiction to our experience. Our conception of nitrogen, formed by experience, is that of a substance which will not support combustion, and we cannot mentally sever the substance from its attribute without destroying the conception altogether. So we cannot conceive that a lump of iron will float in water. Why? Because our conception of iron, formed solely by experience, is that of a substance which sinks in water; and to imagine it otherwise is to suppress the conception, either of iron or of water, and to substitute some other conception in its place. We may try the experiment for ourselves. Try to

imagine a lump of iron floating in water, and you will find that you cannot do it, without mentally endowing either the iron or the water with other attributes than those by virtue of which these substances are what they are, and thus your attempt destroys itself. Yet no Kantian would deny that your conception of iron or of water is wholly formed by experience. Your conception is just what experience has made it, and you cannot alter it without destroying it, simply because you cannot transcend experience.

Here then we come to a conclusion quite the reverse of that maintained by the Kantians. "The irresistible tendency we have to anticipate that the future course of events will resemble the past is simply that we have experience *only* of the past, and as we cannot *transcend* our experience, we cannot conceive things really existing otherwise than as we have known them. The very fact of our being compelled to judge of the unknown by the known — of our irresistibly anticipating that the future course of events will resemble the past — of our incapacity to believe that the same effects should not follow from the same causes — this very fact is a triumphant proof of our having no ideas *not* acquired through experience. If we had *a priori* ideas, these, as independent of, and superior to, all experience, would enable us to judge the unknown according to some *other* standard than

that of the known. But no other standard is possible for us." [1]

The same general considerations will apply to the truths of mathematics, which some Kantians regard as the necessary truths *par excellence*, — habitually speaking of them as if they were in some way truer than physical and chemical truths. Bearing in mind what was said a moment ago, it will be sufficient to observe that in mathematics we utter propositions with respect to certain particular relations alone, without regard to other conditions, and hence there is absolutely no room for contingency. Let me conclude this portion of the subject by a citation from Mr. Lewes: "When we say that twice two is four, or that the internal angles of a triangle are equal to two right angles, we abstract the relations of Number and Form from all other conditions whatever, and our propositions are true, whether the objects counted and measured be hot or cold, large or small, heavy or light, red or blue. Inasmuch as the truths express the abstract relations only, no change in the other conditions can affect these relations; and truths must always remain undisturbed until a change take place in their terms. Alter the number *two*, or the figure *triangle*, by an infinitesimal degree, and the truth is thereby altered. When we say that bodies expand by heat, the

[1] Lewes, *History of Philosophy*, 2d edition, p. 668.

proposition is a concrete one, including the variable conditions; but although these variable conditions prevent our saying that all bodies will under all conditions be always and forevermore expanded by heat, the case is not really distinguished from the former one, since both the Contingent and the Necessary Truth can only be altered by an alteration in the terms. If a body which does not expand by heat (there are such) be brought forward as impugning the truth of our proposition, we at once recognize that this body is under different conditions from those which our proposition included. This is the introduction of a new truth, not a falsification of the old. Our error, if we erred, was in too hastily assuming that all bodies were under the same conditions. Hence the correct definition of a Contingent Truth is 'one which generalizes the conditions;' while that of a Necessary Truth is 'one which is an unconditional generalization.' The first affirms that whatever is seen to be true, under present conditions, will be true so long as these conditions remain unaltered. The second affirms that whatever is true now, being a truth irrespective of conditions, cannot suffer any change from interfering conditions, and must therefore be universally true." [1]

[1] *History of Philosophy*, 4th edition, vol. i. p. cv. This view, which I hold to be the most important contribution ever

To this lucid exposition it is hardly necessary to add that the mental compulsion under which we accept mathematical truths is of precisely the same character as that under which we accept physical or chemical truths. Our conception of parallel lines — a conception which the Kantian admits to have been formed by experience — is a conception of lines which do not enclose space. And just as we found that, in order to imagine nitrogen supporting combustion, we were obliged to suppress the conception of nitrogen altogether and substitute for it some other conception, we also find that, in order to imagine two parallel lines enclosing a space, we must suppress the conception of parallel lines altogether, and substitute for it the conception of bent or converging lines. The two cases are exactly similar. In the one case, as in the other, our conceptions are but the registry of our experience, and can therefore be altered only by being temporarily annihilated. Our minds being that which intercourse with the environment — both their own intercourse and that of ancestral minds, as will be shown hereafter — has made them, it follows that our indestructible beliefs must be the registry of

made to the discussion of Necessity and Contingency, is still more thoroughly and forcibly presented by Mr. Lewes in his new work, *Problems of Life and Mind*, vol. i. pp. 390–414.

that intercourse, must be necessarily true, not because they are independent of experience, but because they are the only complete unqualified expression of it. Here then on the ruins of the Kantian hypothesis, we may erect a canon of truth, as follows: —

A necessary truth is one that is expressed in a proposition of which the negation is inconceivable, after all disturbing conditions have been eliminated.

A proposition of which the negation is inconceivable is necessarily true in relation to human intelligence.

This test of inconceivability is the only ultimate test of truth which philosophy can accept as valid.

Thus the uniformity-test of Hume and the inconceivability-test of Kant are fused together in a deeper synthesis — the deepest which philosophy can reach. As Mr. Spencer forcibly states it: "Conceding the entire truth of the position that, during any phase of human progress, the ability or inability to form a specific conception wholly depends on the experience men have had; and that, by a widening of their experiences, they may by and by be enabled to conceive things before inconceivable to them; it may still be argued, that as at any time the best warrant men can have for a belief is the perfect agreement of all preëxisting experience

in support of it, it follows that, at any time, the inconceivableness of its negation is the deepest test any belief admits of. Objective facts are ever impressing themselves upon us; our experience is a register of these objective facts; and the inconceivableness of a thing implies that it is wholly at variance with the register. Even were this all, it is not clear how, if every truth is primarily inductive, any better test of truth could exist. But it must be remembered, that whilst many of these facts impressing themselves upon us are occasional, whilst others again are very general, some are universal and are unchanging. These universal and unchanging facts are, by the hypothesis, certain to establish beliefs of which the negations are inconceivable; whilst the others are not certain to do this; and if they do, subsequent facts will reverse their action."

As this position has been vehemently attacked by Mr. Mill, who hardly admits for the test of inconceivableness any validity whatever, some further explanation is desirable. It must not be supposed that, in erecting such a canon of truth, we are imitating those high *a priori* metaphysicians, who regard all their cherished traditional notions as infallible intuitions, because of their professed inability to disbelieve them. This is a confusion of which Mr. Mill has not succeeded in keeping clear, and which has led him

unintentionally to misrepresent the position taken by Mr. Spencer and Mr. Lewes.

The confusion arises from the double sense of the word *belief*,[1] and the accompanying ambiguous use of the term *inconceivable*. By a singular freak of language we use the word *belief* to designate both the least persistent and the most persistent coherence among our states of consciousness, — to describe our state of mind with reference both to those propositions of the truth of which we are least certain, and to those of the truth of which we are most certain. We apply it to states of mind which have nothing in common, except that they cannot be justified by a chain of logical proofs. For example, you believe, perhaps, that all crows are black, but being unable to furnish absolutely convincing demonstration of the proposition, you say that you believe it, not that you know it. You also believe in your own personal existence, of which, however, you can furnish no logical demonstration, simply because it is an ultimate fact in your consciousness which underlies and precedes all demonstration. So with the axioms of geometry. If asked what are our

[1] The source of this confusion is the failure to distinguish between the kind of belief which remains after "the reduction of inferences to sensations," and that which is founded in a "reliance on unverified inferences." — See Lewes, *Problems of Life and Mind*, vol. i. p. 369.

grounds for believing that two straight lines cannot enclose a space, we can only reply that the counter-proposition is inconceivable; that we cannot frame the conception of two straight lines enclosing a space; that in any attempt to do so, the conception of straight lines disappears and is replaced by the conception of bent lines. We believe the axiom simply because we must believe it.

It is only in this latter sense that the word *belief* is employed in the canon of truth above stated, and when Mr. Spencer says that a given proposition is inconceivable, he means that it is one of which the subject and predicate can by no amount of effort be united in consciousness. Thus (to take Mr. Spencer's illustration), that a cannon-ball fired from England will reach America is a proposition which, though utterly incredible, is not inconceivable, — since it is quite possible to imagine the projectile power of cannon increased four-hundredfold, or one-thousandfold, were the requisite conditions at hand; but that a certain triangle is round is an inconceivable proposition, for the conceptions of roundness and triangularity will destroy each other sooner than be united in consciousness. And manifestly we can have no deeper warrant for the truth of a proposition than that the counter-proposition is one which the mind is incompetent to frame. Such a state of things im-

plies that the entire intercourse of the mind with the environment is witness in favour of the proposition and against its negation.

It is indeed a popular misconception, — a misconception which lies at the bottom of that manner of philosophizing which is called Empiricism, — that nothing can be known to be true which cannot be demonstrated. To be convinced that this is a misconception, we need but to recollect what a demonstration is. Every demonstration consists, in the first place, of a series of steps in each of which the group of relations expressed in a proposition is included in some other and wider group of relations, — is seen to be like some other group previously constituted. Now if this process of inclusion is not to be carried on forever, we must come at last to some widest group, — to some generalization which cannot be included in any wider generalization, and of which we can only say that the truth which it expresses is so completely abstracted from perturbing conditions that it can be recognized by a simple act of consciousness as self-evident. If, for example, "we ascribe the flow of a river to the same force which causes the fall of a stone," and if, "in further explanation of a movement produced by gravitation in a direction almost horizontal, we cite the law that fluids subject to mechanical forces exert reactive forces which are equal in

all directions," we are going through a process of demonstration, — we are including a special fact under a more general fact. If now we seek the warrant for this more general fact, and find it in that most general fact that force persists, we are still going through a process of demonstration. But if lastly we inquire for the warrant of this most general fact, we shall get no reply save that no alternative can be framed in thought. That force persists we are compelled to believe, since the proposition that force can arise out of nothing or can lapse into nothing is a verbal proposition which we can by no amount of effort translate into thought. Thus at the end of every demonstration we must reach an axiom for the truth of which our only test is the inconceivability of its negation.

Secondly, from a different point of view, a demonstration is a series of propositions, every one of which is necessarily involved in the preceding one. How do we know it to be thus necessarily involved? How do we know that the statement that action and reaction are equal and opposite is necessarily involved in the statement that force persists? Simply because we can conceive no alternative, since to do so would be to perform the impossible task of formulating in consciousness an equation between something and nothing. Thus our only warrant for each step of a demonstration is the fact that any

alternative step is one which the mind cannot take.

Such is indeed our only warrant for that most certain of all facts — the existence of our own states of consciousness. If you say that you have a sensation of redness, and I require you to prove the statement, you can only reiterate that such is the fact, the testimony of consciousness as to the existence of its own states being final, and admitting of no appeal. You cannot conceive it to be otherwise. During the presence of the sensation of redness it is impossible for any opposite state of consciousness, such as the sensation of blueness, to emerge. With regard to the cause of the sensation, the case is wholly different. The sensation of redness may be due to the presence of an external object from which emitted red rays impinge upon the retina ; or it may be due to the presence of certain foreign substances in your blood which excite in the optic nerve such a rate of undulation as to produce the consciousness of red colour. All this is matter of inference, and must be verified by the repeated application of the test of truth. But for the ultimate dictum — that the given state of consciousness exists — you have the direct warrant of consciousness itself.

In the light of this explanation, does not our canon of inconceivability seem almost a truism,

and does it not seem a singular *ignoratio elenchi* when Mr. Mill urges against us that the ancients could not conceive the existence of the antipodes, which nevertheless exist? It is quite true that the ancients could not *believe* that men could stand on the other side of the earth without falling off; and this was because they falsified one of the conditions of the complex case. They imagined gravity continually acting downwards, not knowing that downwards means toward the centre of the earth. What they could not *conceive* was that an unsupported body will not fall; and this is still strictly inconceivable, since to assert that an unsupported body will not fall is to assert that a given amount of gravitative force, when not counteracted by an equivalent opposing force, will not manifest itself in motion, — a verbal assertion which can by no effort be construed into thought.

A similar reply awaits Mr. Mill's argument from the old belief in the destructibility of matter. It is now inconceivable that a particle of matter should either come into existence or lapse into non-existence. But before the use of the balance in chemistry had shown experimentally that nothing ever disappears, hypotheses were freely propounded in which the indestructibility of matter was entirely ignored; and accordingly Mr. Mill appears to believe that in former times the annihilation of matter was

thinkable. In reply it is enough to observe that, so long as human intelligence has been human intelligence, it can never have been possible to frame in thought an equation between something and nothing: yet this is the impossibility which must be surmounted before the annihilation or the creation of a particle of matter can become representable in consciousness. The truth is that whoever, before the discoveries of chemistry, maintained that matter is destructible, defended a verbal proposition which answered to no framed or framable conception. Of a piece with this is the fact that in all ages men have tortured, slain, calumniated, or otherwise persecuted each other in their zeal to get sundry propositions established, the subject and predicate of which could never be united in thought. It is not so very long since Michael Servetus was burned at the stake for a heresy partly based upon doubts as to the possible equality or identity of three and one; yet not even Mr. Mill would maintain that it has ever been possible for human intelligence to join together the members of the quantitative theorem implied in the doctrine of the Trinity. It appears, therefore, that men may believe, or at least maintain, what they can in nowise conceive. As Mr. Spencer well says, "Refrain from rendering your terms into ideas, and you may reach any conclusion whatever. That the whole is

equal to its part is a proposition that may be quite comfortably entertained so long as neither wholes nor parts are imagined." This is one of the ways in which so many absurd theories obtain currency, and having once become current are so difficult to banish from circulation. The philologist A. W. Schlegel once suggested that the terminations of words may have grown out from the roots, just as branches of trees grow from axillary buds. Inductive philology has proved this notion to be false; and has shown that in all cases a termination is the abraded relic of an originally distinct qualifying word, which by constant use and through rapid pronunciation, during primitive ages when words were addressed only to the ear, has become inseparably agglutinated to the qualified word or root. This discovery, which has long been completely verified, of course supersedes and renders antiquated the hypothesis of Schlegel. But the point which here concerns us is that no such elaborate induction was needed to show that the notion of a budding termination is in itself absurd. All that was needed to reveal its absurdity was to stop and translate the words used into ideas. To say that a termination buds out from a root is to combine words which severally possess a meaning into a phrase which has no meaning. We can severally form concepts of a word-termination, of a word-root,

and of the process of budding; but the three concepts are wholly disparate and refuse to unite into a thinkable proposition. The hypothesis had no other foundation than the vague associations with the processes of vegetal life which cluster about such a word as "root;" and the fact that a scholar like Schlegel could seriously found a theory of language upon such a mere chaos of half-shaped conceptions shows us how easy it is for highly educated men to think in a very slovenly manner. But it likewise conclusively shows us that the assent of philosophers in past ages, or of uneducated people in our own age, to sundry unthinkable propositions, is not to be cited as evidence that there are minds which can think what is unthinkable. The building up of enormous theories out of purely verbal propositions, which do not correspond to any thinkable concatenation of conceptions, has always been the besetting sin of human philosophizing. It has been known, since the Middle Ages, by the apparently incongruous epithet of Realism, because at that time it was most conspicuously illustrated in the famous theory that wherever there is a general term there must be a real objective thing corresponding to it, — a general Horse, for example, in addition to all individual horses. This single phase of the mental habit in question might be cited as an all-sufficient answer

to Mr. Mill's objection. Mr. Mill would be the last to admit that the realists were able to conceive of Horse except as some particular horse; yet they stoutly maintained that they could and did frame such a conception. The Platonic theory of Ideas was based upon this realistic tendency to lend an objective value to the mere verbal signs of subjective conceptions, which was dominant in the philosophy of the Greeks and of the scholastics, and which, in modern times, is well exemplified in the philosophy of Hegel.

We thus see that men may believe — or believe that they believe — propositions which they cannot, in the strict sense of the word, conceive. Until men have become quite freed from the inveterate habit of using words without stopping to render them into ideas, they may doubtless go on asserting propositions which conflict with experience; but it is none the less true that valid conceptions wholly at variance with the subjective register of experience can at no time be framed. And it is for this reason that we cannot frame a conception of nitrogen which will support combustion, or of a solid lump of iron which will float in water, or of a triangle which is round, or of a space enclosed by two straight lines. So that when Mr. Mill hints that it was once possible for men to frame conceptions which cannot now be framed, he tacitly

John Stuart Mill

assumes that conceptions may have been framed of which the elements have never been joined together in experience. Yet of all possible psychological theorems there is none, I suppose, which, when overtly stated, Mr. Mill would more emphatically deny than this. To see Mr. Mill unwittingly arrayed in the lists against the experience-theory is indeed a singular spectacle; but it is only one instance out of many of the way in which that theory has suffered from its association with empiricism. When in a future chapter we come to treat of the evolution of intelligence, we shall see that Mr. Spencer was the first to penetrate to the very core of the experience-philosophy when he perceived that the deepest warrant for the perfect conformity of a given proposition with experience is the unthinkableness of the counter-proposition.[1]

[1] Since my final revision of this chapter, I find the case thus admirably put into a nutshell by Mr. Lewes, in his now forthcoming work, *Problems of Life and Mind*, vol. i. p. 396: "The arguments which support the *a priori* view have been ingeniously thrown into this syllogism by Mr. Killick: The necessary truth of a proposition is a mark of its not being derived from Experience. (Experience cannot inform us of what *must* be:) *The inconceivability of the contradictory* is the mark of the necessary truth of a proposition: Therefore *the inconceivability of its contradictory is a mark of a proposition not being derived from Experience.* — This syllogism is perfect in form, but has a radical defect in its terms. The inconceivability of a contradictory results from

But now, what do we mean when we say that, after eliminating all perturbing conditions, a proposition of which the negation is unthinkable must be necessarily true? By a confusion of ideas very unusual with him, Mr. Mill seems to think that we mean to accredit such propositions with expressing some necessary relation among objective realities *per se*, apart from their relation to our intelligence; for he somewhere charges Mr. Spencer with "erecting the incurable limitations of the human conceptive faculty into laws of the outward universe." When correctly interpreted, however, Mr. Spencer will be found to have done no such thing. He simply erects them, as Mr. Lewes expresses it, into "laws of the conceptions we form of the universe." Holding as we do, that all our knowledge is derived from experience, that we have no experience of the objective order of the relations among things, and hence can never know whether it agrees or disagrees with the subjective order of our conceptions, — it is passing strange that we should ever have been called upon to correct such a misinterpretation. All

the entire absence of experiences on which a contradiction could be grounded. If there were any truths independent of Experience, contradictions to them would be conceivable, since there would be no positive obstacle to the conception; but a contradiction is inconceivable only when all Experience opposes itself to the formation of the contradictory conception."

that Mr. Spencer or his followers have ever maintained is this: that although we have no experience of the objective order in itself, we have experience of the manner in which the objective order affects us. Though we have no experience of noumena, we have experience of phenomena. And when experience generates in us a subjective order of conceptions that cannot be altered, we have the strongest possible warrant that the order of our conceptions corresponds to the order of phenomena. Expressed in this abstract terminology, the precise shade of my meaning may be difficult to catch and fix; but a concrete illustration will, I trust, do away with the difficulty. If the subjective order of my conceptions is such that the concept of a solid lump of iron and the concept of a body floating in water will destroy each other rather than be joined together, and I therefore say that a solid lump of iron will not float in water, what do I mean by it? Do I intend any statement concerning the unknown external thing, or things, which when acting upon my consciousness causes in me the perceptions of iron, and water, and floating or sinking? By no means. I do not even imply that such modes of existence as iron or water, or such modes of activity as floating or sinking, pertain to the unknown external reality at all. It is impossible for us to realize, but it is nevertheless imaginable, that to

some form of impressibility quite different from what we know as conscious intelligence, the same unknown reality might be manifested as something quite different from iron or water, sinking or floating. By my statement I only imply that whenever that same unknown thing, or things, acts upon my consciousness, or upon the consciousness of any being of whom intelligence can be properly predicated, there will always ensue the perception of iron sinking in water, and never the perception of iron floating in water. And in stating this, I only reveal my incapacity for conceiving that, under identical conditions, the Unknowable can ever act upon human intelligence otherwise than it has always acted upon it. In other words, I am showing that I cannot transcend the limits of experience; and I am reaffirming, in the most emphatic manner, the relativity of all knowledge.

We are now in a position to answer the queries which were propounded at the beginning of this chapter. At the outset of our inquiry, Truth was provisionally defined as the correspondence between the subjective order of our conceptions and the objective order of the relations among things. But this is the definition of that Absolute Truth, which implies an experience of the objective order in itself, and of such truth we can have no criterion. It was

this which Mr. Mill must have had in mind, when he let fall the much criticised suggestion that in some distant planet the sum of two and two might be five. But such a statement is inadequate; for when we speak of planets and numbers, we are tarrying within the region of things accessible to intelligence, and within this region we cannot admit the possibility of two and two making five. It is nevertheless imaginable that somewhere there may be a mode of existence, different from intelligence, and inconceivable by us because wholly alien from our experience, upon which numerical limitations like ours would not be binding. The utter blankness of uncertainty in which such a suggestion leaves us may serve as an illustration of the theorem that we can have no criterion of Absolute Truth, or of truth that is not correlated with the conditions of our intelligence.

But the lack of any such criterion in no way concerns us as intelligent beings. The only truth with which we have any concern is Relative Truth, — the truth that is implicated with whatever can in any way come within our cognizance. For relative truth our inquiry has established this criterion. When any given order among our conceptions is so coherent that it cannot be sundered except by the temporary annihilation of some one of its terms, there must be a corresponding order among pheno-

mena. And this, as we have seen, is because the order of our conceptions is the expression of our experience of the order of phenomena. I will only add that what we mean by *reality* is "inexpugnable persistence in consciousness;" so that when the unknown objective order of things produces in us a subjective order of conceptions which persists in spite of every effort to change it, the subjective order is in every respect as real to us as the objective order would be if we could know it. And this is all the assurance we need, as a warrant for science, and as a safeguard against scepticism. In the next chapter I shall endeavour to show that we are no whit the worse off for not being able to transcend the conditions within which alone knowledge is possible. Since "experience" means merely the consciousness of the manner in which the Unknowable affects us, it follows that our very incapability of transcending experience is the surest guaranty we could desire of the validity of the fundamental conceptions by which our daily life is guided, and upon which our philosophy must be built.

CHAPTER IV

PHENOMENON AND NOUMENON[1]

SUMMING up the results of the foregoing discussion, we have seen that neither the test of truth proposed by Hume, nor that proposed by Kant, can be regarded as valid, considered by itself; but that, when fused together in the crucible of modern psychologic analysis, the two can be regarded as making up a criterion of truth adequate to all the needs of intelligent beings. It has been proved that, since the series of our conceptions is but the register of our experience, perfect congruity of experience must generate in us beliefs of which the component conceptions can by no mental effort be torn apart. Whence it follows that, if relative truth be defined as the correspondence between the order of our conceptions and the order of phenomena, we have this for our test of truth: When any given order among our conceptions is so coherent that it cannot be sundered except by the temporary annihilation of some one of its terms, there must be a corresponding order among phenomena. And this

[1] [See Introduction, § 10.]

statement, while it expresses the fundamental theorem of what is known as the experience-philosophy, recognizes also a germ of truth in the Kantian doctrine of necessity. When, in a future chapter, the exposition of the Doctrine of Evolution shall have advanced so far that we may profitably consider the nature of the process by which intelligence has arisen, we shall be enabled to carry much farther the reconciliation, here dimly foreshadowed, between the great opposing theories of the experientialists and the intuitionalists. However difficult it may be to realize that this apparently interminable controversy is at length to be decided and passed over as antiquated, like the yet longer dispute between Nominalism and Realism, it will nevertheless be shown that this is the case. It will be shown that the Doctrine of Evolution affords the means of reconciling the psychology of Locke and Hume with the psychology of Leibnitz and Kant, not by any halfway measures of compromise, but by fusing the two together in a synthesis deeper and more comprehensive than either of them singly has succeeding in making.

At present, however, merely hinting at these conclusions which are by and by to follow, we must address ourselves to a yet more arduous task of reconciliation, — the task of reconciling our ineradicable belief in the existence of something external to ourselves with the scientific

reasoning which shows that we cannot directly know anything save modifications of ourselves. We have to examine the theory concerning objective reality which, along with more or less important qualifications, is held in common by Idealism, by Scepticism, and by Positivism, as represented respectively by Berkeley, Hume, and Mill. And by characterizing, with the aid of the principles now at our command, the fundamental error of that theory, we shall be enabled properly to define the very different position held by Mr. Spencer and adopted in the present work.

Our argument must concern itself chiefly with Berkeley, since the conclusion reached in dealing with his doctrine will apply directly to the doctrine of Hume, and will point the way to the criticism needful to be made upon the doctrine of Mr. Mill. Indeed, as Mr. Mill has well remarked, there is a sense in which all modern philosophy may be said to date from Berkeley. To say nothing of his discovery of the true theory of vision, the first truth ever discovered in psychology which stands upon the same footing as the demonstrated truths of physical science; to say nothing of the magnificent arguments by which he brought to a close the seven hundred years' war between the Realists and the Nominalists; his docrine of Idealism, the psychologic basis of which has never been

shaken, forms the pivot upon which all subsequent metaphysical speculation has turned. It is the first point which inevitably presents itself for discussion in any system of philosophy which, after settling upon its criterion of truth, attempts with the aid thereof to found a valid explanation of the relations of man with the Cosmos of which he is a part. Nay more, it is, as Berkeley himself held, narrowly implicated with our theories of religion, though not in the way which Berkeley supposed, but in a way which he did not foresee, and could not have been expected to foresee.

In characterizing the Idealism of Berkeley as contrary to our ineradicable belief in the existence of something independent of ourselves, it is well to note at the outset that the point of antagonism is not what — with extreme, though perhaps excusable carelessness — it was assumed to be by Reid. The objective reality which Berkeley denied was not what is known as the external world of phenomena. What Berkeley really denied was the Absolute Existence of which phenomena are the manifestations.[1] He

[1] Or, to speak more accurately, what Berkeley really denied was the scholastic theory of occult substrata underlying each group of phenomena. In this denial we maintain that he was right; but his denial was made in such wise as to ignore the fact of an Absolute Existence of which phenomena are the manifestations, and herein, as we maintain, was his funda-

denied the Noumenon. "It is a mere abstraction," he says. "If it is unknown, unknowable, it is a figment, and I will have none of it; for it is a figment worse than useless; it is pernicious, as the basis of all atheism. If by *matter* you understand that which is seen, felt, tasted, and touched, then I say matter exists: I am as firm a believer in its existence as any one can be, and *herein I agree with the vulgar.* If, on the contrary, you understand by matter that occult substratum which is *not* seen, *not* felt, *not* tasted, *not* touched, — that of which the senses do not, cannot inform you, — then I say I believe not in the existence of matter, *and herein I differ from the philosophers, and agree with the vulgar.*"[1] The "grin," therefore, with which "coxcombs" sought to "vanquish Berkeley" revealed only their incapacity to understand him. Nevertheless, the antagonism between Idealism and common sense remains, though its position is shifted; as appears from the expressions of a very able idealist, the late Professor Ferrier, when he says that Berkeley sided with those "who recognize no distinction between the reality and the appearance of objects, and *repudiating the baseless hypothesis of a world existing*

mental error, — an error which has been adopted by Positivism, and which vitiates that system of philosophy from beginning to end.

[1] Lewes, *History of Philosophy*, 3d edition, vol. ii. p. 284.

unknown and unperceived, he resolutely maintained that what are called the sensible shows of things are in truth the very things themselves."[1] In this mode of statement the antagonism between Idealism and common sense is forcibly brought out, though the intention of the writer was rather to insist upon their harmony. For as the "very things themselves" which are known and perceived were held by Berkeley, and are still held by psychologists generally, to consist in modifications of our consciousness, it follows that, according to Berkeley, the only real existence is mind with its conscious modifications. What common sense affirms is the existence of something independent of our consciousness; but this is just what Berkeley denied.

Suppose now we grant, for the sake of the argument, that the only real existence is mind with its conscious modifications. The question at once arises, what is the cause of these modifications? Since consciousness is continually changing its states, and indeed exists only by virtue of a ceaseless change of states, what is it that determines the sequence of states? If, after the congeries of states of consciousness composing the knowledge that I am putting out my hand in the dark, there supervenes the state of consciousness known as the feeling of resist-

[1] Ferrier, *Philosophical Remains*, vol. ii. p. 297.

ance, what is it that determines the sequence? According to Berkeley, it is the will of God. God has predetermined for us the sequence of states of consciousness, having so arranged things that whenever we ideally thrust an ideal head against an ideal chimney-piece, the states of consciousness known as the perception of resistance and the sensation of headache, complicated with divers unpleasant emotional states, will necessarily ensue. Now for two reasons this is an explanation which science cannot recognize. In the first place, it is either a restatement, in other words, of the very fact which is to be explained, or else it substitutes a cumbrous explanation, involving a complex group of postulates, for the simple ordinary explanation which involves but a single postulate. In the second place, it is a hypothesis which can be neither proved nor disproved; and, as we shall hereafter see, all such hypotheses must be regarded as illegitimate. But, unless we admit the existence of an external reality, is there any alternative hypothesis? Must we not accept Berkeley's explanation, in default of any other?

There is one alternative hypothesis, and only one. As Berkeley drew his idealism from Locke, so when Kant demonstrated that we cannot know the objective reality, Fichte drew the inference that the objective reality does not exist. Fichte, like Berkeley, held that the only

real existence is mind with its sequent conscious states. But Fichte differed from Berkeley in his explanation of the sequence of our states of consciousness. Fichte held that this sequence is determined by itself — that it depends upon the internal constitution of the mind. Or, in other words, he maintained that the subject creates the object. From this doctrine have lineally descended all the vagaries of modern German idealism — vagaries of method as well as vagaries of doctrine, as any one may see who, after some familiarity with scientific methods, looks over the so-called "Nature-philosophy" of Schelling and Oken. Its extreme corollaries have been stated by Hegel, who, if I do not misinterpret him, regards the universe as nothing but the self-determined sequence of states of consciousness of an Absolute Intelligence, of which our individual intelligences are partial manifestations. Manifestly we have here arrived at logical suicide. We begin, with Kant, by saying that we have no knowledge of the objective order of things; we continue, with Fichte, by saying that there is no objective order, save that which the mind creates for itself; and we end, with Hegel, by identifying the objective order with the subjective, and maintaining that whatever is true of the latter is true also of the former. In saying this, we virtually maintain that the possibilities of thought are not only

coextensive but identical with the possibilities of things; and thus destroy the doctrine of relativity with which we started. The post-Kantian idealism may therefore be described as a linear series of corollaries, the last of which destroys the axiom upon which the first of the series rests.

A similar suicide must be the fate of any doctrine of idealism. We often hear it said that Berkeley's clear scientific reasoning has never been, and can never be, refuted. This is to a certain extent true. What never has been, and never can be refuted, is the clear scientific reasoning by which Berkeley proves that we cannot know the objective reality. What can be, and has already been refuted, is the unphilosophic inference that there is no objective reality. Reid, with his so-called "Common-Sense Philosophy," failed because he attacked the scientific doctrine instead of the unphilosophic inference. Out of sheer fright at what he considered the conspicuous absurdity of Berkeley's position, Reid maintained that we do know objects *per se;* that in every act of perception the objective reality is immediately given in consciousness. Reid laid great stress upon Locke's distinction, useful in some respects, between the primary and secondary qualities of matter, and held that we know the first in themselves, although we know the second only in their effects

upon our consciousness. Thus, while admitting that redness is only the name of a state of consciousness produced in us by an unknown external agent, Reid insisted that, on the other hand, in our consciousness of weight or resistance we know the external agent itself, and not merely a state of consciousness. Plausible as this opinion appeared, not only to the superficial Reid, but to that much abler though rather fragmentary thinker, Sir William Hamilton,[1] it is nevertheless irreconcilable with some very obvious psychological facts. To cite one or two examples from Mr. Spencer's "Principles of Psychology:" "The same weight produces one kind of feeling when it rests on a passive portion of the body, and another kind of feeling when supported at the end of the outstretched arm." In which of these cases, then, do we know the real objective weight? We cannot know it in both, since in that case the substance of the two cognitions would be the same. Again, if one hand is laid palm downwards upon the table, and "a knuckle of the other hand is thrust down with some force on the back of it, there results a sensation of pain in the back of the hand, a sensation of pressure in the knuckle, and a sensation of muscular

[1] Even the great Locke had not freed himself from this error. See the *Essay on Human Understanding*, Book II. chap. viii.

tension in the active arm. Which of these sensations does the mechanical force in action resemble, qualitatively or quantitatively? Clearly, it cannot be assimilated to one more than another of them; and hence must in itself be something alien from, or unrepresentable by, any feeling." [1]

This disposes of Reid, who was indeed but an indifferent psychologist, and rested his refutation of Berkeley chiefly upon misplaced ridicule and equally misplaced appeals to common sense. He tauntingly asked why the great idealist did not illustrate his doctrine by walking over a precipice or thrusting his head against a lamp-post, as if Berkeley had ever denied that such a congeries of phenomenal actions would be followed by disastrous phenomenal effects. No wonder that a philosophy founded upon such flimsy psychological analysis should never have obtained wide acceptance among trained thinkers; and no wonder that Idealism should still by many persons be considered as unrefuted.

It is by making the unphilosophic inference that because we cannot know the objective reality therefore there exists none, that Idealism destroys itself. As long as we admit that the possibilities of things are limited by the possibilities of thought, we cannot overturn Idealism: we must go on and grant that because we can

[1] Spencer, *Principles of Psychology*, vol. i. p. 206 [§ 86].

form no conception of matter apart from the conditions imposed upon it by our intelligence, therefore no thing can exist apart from such conditions. As Professor Ferrier forcibly states the case, "I defy you to conceive anything existing unperceived. Attempt to imagine the existence of matter when mind is absent. You cannot, for in the very act of imagining it, *you include an ideal percipient*. The trees and mountains you imagine to exist away from any perceiving mind, what are they but the very ideas of *your* mind, which you transport to some place where you are not? In fact, to separate existence from perception is radically impossible. It is God's synthesis, and man cannot undo it." All this is equivalent to saying that we cannot "imagine an object apart from the conditions under which we know it. We are forced by the laws of our nature to invest objects with the forms in which we perceive them. We cannot therefore conceive anything which has not been subject to the laws of our nature, because in the very act of conception those laws come into play."[1] But when the idealist proceeds to infer that because we cannot conceive objects otherwise, therefore they cannot exist otherwise, he assumes that knowledge is absolute, and thus knocks away the psychological basis upon which his premise was founded. If we would consistently refrain

[1] Lewes, *History of Philosophy*, vol. ii. p. 302.

from violating the doctrine of relativity, we must state the idealist's premise, but avoid his conclusion. We admit that "the trees and mountains you imagine to exist away from any perceiving mind" do not really exist *as trees and mountains* except in relation to some perceiving mind. We admit that matter does not exist *as matter*, save in relation to our intelligence; since what we mean by matter is a congeries of qualities — weight, resistance, extension, colour, etc. — which have been severally proved to be merely names for divers ways in which our consciousness is affected by an unknown external agency. Take away all these qualities, and we freely admit, with the idealist, that the *matter* is gone; for by *matter* we mean, with the idealist, the phenomenal thing which is seen, tasted, and felt. But we nevertheless maintain, in opposition to the idealist, that *something* is still there, which, to some possible mode of impressibility quite different from conscious intelligence, might manifest itself as something wholly different from, and incomparable with, matter; but which, to anything that can be called conscious intelligence, must manifest itself as matter. We freely admit that what we mean by a tree is merely a congeries of qualities that are visual and tactual, and perhaps odorous, sapid, or sonorous. If we were destitute of sight, touch, smell, taste, hearing, and muscular sensibility, all these qualities

would cease to exist, and therefore the tree would cease to be tree. But it does not follow that the Unknown Reality which caused in us these groups of sensations has ceased to exist. Our ineradicable belief is that it still exists, and would assume the qualities which constitute tree as soon as our capacity of sensation were restored. And we recognize, as in accordance with the dictates of common sense, the suggestion that if some Being with seventy senses, like the denizen of the planet Saturn in Voltaire's inimitable satire, were to come into the presence of this same Unknown Reality, there would undoubtedly arise in this Being the consciousness of a congeries of qualities different from that which constitutes tree. We further recognize that if this Being were endowed with some mode of impressibility so different from ours that the name "intelligence" would not apply to it, this same Unknown Reality might generate in such a Being some state or states wholly different from what we know as the cognition of a material object. I say, we regard these conclusions as consistent with that extended and systematized common sense which is called science. In stating them, we assert, to the fullest extent to which the exigencies of human language will admit of our asserting it, the relativity of all knowledge; and we admit everything which the idealists have established upon the sound basis

of psychologic induction. What we refuse to admit is the legitimacy of the idealist's inference that the Unknown Reality beyond consciousness does not exist. We assert, on the contrary, that the doctrine of relativity cannot even be intelligibly stated without postulating the existence of this Unknown Reality, which is independent of us. The proposition that the tree or the mountain exists *as tree or mountain* only in so far as it is cognized, becomes utter nonsense when we seek to suppress the conception of a persistent Something which becomes tree or mountain in being cognized.

Before proceeding farther to develop this argument, we may fitly include Positivism along with Idealism as opposed to the conclusion which we are about to defend. The position of Positivism with reference to this question has never been definitely stated by Comte, or by his most eminent and consistent disciple, M. Littré, and it may indeed be doubted whether, with all their remarkable endowments of another sort, either of these thinkers has ever given evidence of enough power of psychologic analysis to grapple with such a problem. It is certain that M. Littré neither admits nor understands (so as to state it correctly) the Spencerian doctrine that there exists an Unknowable Reality; and it will be amply shown hereafter that Comte not only ignored the existence of such a Reality, but

implicitly and practically denied it. It is to Mr. Mill, who has on different occasions given in his assent to nearly all the doctrines which are distinctively characteristic of the Positive Philosophy, that we must look for an explicit declaration of the precise relation of Positivism to Idealism. Happily Mr. Mill has given us, in his work on the Hamiltonian philosophy, an elucidation of his views which leaves no room for misconception; and in his recent essay on Berkeley he has presented, in a single sentence, the clue to the Positivist position. Among the unimpeachable discoveries which philosophy owes to Berkeley, says Mr. Mill, was that of "the true nature and meaning of the externality which we attribute to the objects of our senses: that it does not consist in a substratum supporting a set of sensible qualities, or an unknown somewhat, which, not being itself a sensation, gives us our sensations, but consists in the fact that our sensations occur in groups, held together by a permanent law, and which come and go independently of our volitions or mental processes." Note that Mr. Mill does not endorse the Berkeleian denial of the objective reality. True to the fundamental canon of Positivism he states merely the contents of the observed facts, which, as we also admit, were correctly stated by Berkeley; but concerning the existence of the Unknowable Reality, which we

regard as the inevitable implication of the observed facts, he is silent. And his silence, as well as his assertion, is strictly in harmony with the spirit of Positivism.

The distinction, then, between Idealism and Positivism may be taken to be this. The former asserts that the unknowable objective reality is a mere figment of the imagination, while the latter refrains from making any assertion with reference to it. The former, therefore, tacitly violates the doctrine of relativity by assuming that the possibilities of our thinking are to be taken as the measure of the possibilities of existence — the latter perceives that such an assumption is illegitimate, but seeks to escape the difficulty by ignoring the question at issue. In other words, while unwilling to contravene the doctrine of relativity upon which it professes to found itself, it is yet content to state but half the doctrine.

Bearing this in mind, we may return to the argument, which will now be understood as directed against the position which Idealism and Positivism hold in common. And we may observe, first, that the very sentence just quoted from Mr. Mill affords a most excellent illustration of the impossibility of stating either the position of Idealism or that of Positivism without implying the existence of that objective reality which the former would impugn and

which the latter would ignore. The sum of the whole matter, according to Mr. Mill, is "the fact that our sensations occur in groups, held together by a permanent law, and which come and go independently of our volitions or mental processes." How comes it that our sensations occur in groups? Why is it that they are held together by a permanent law? And, above all, how does it happen that they come and go independently of our volitions or mental processes? Suppress the notion of a Something outside of consciousness which determines this coming and going of our sensations, and we have no alternative but to regard them either as self-determined, which leads us finally to Hegelism, or as not determined at all, which is inconceivable. Mr. Mill's statement is either nonsense, or else it tacitly postulates that Absolute Existence which it overtly professes to ignore. It is as impossible, therefore, to ignore as it is to deny Absolute Existence. Without assuming Something independent of consciousness, it is impossible for either Idealism or Positivism to state the theorem in which it is sought either to impugn or to ignore the existence of anything beyond consciousness.

The suicide to which Idealism or Positivism is inevitably driven is further exhibited in the following citation from Mr. Spencer. After reminding us that all the arguments which go to

demonstrate the relativity of knowledge set out by assuming objective existence, he goes on to say: "Not a step can be taken towards the truth that our states of consciousness are the only things we can know, without tacitly or avowedly postulating an unknown Something beyond consciousness. The proposition that whatever we feel has an existence which is relative to ourselves only cannot be proved, nay, cannot even be intelligibly expressed without asserting, directly or by implication, an external existence which is not relative to ourselves. When it is argued that what we are conscious of as sound has no objective reality as such, since its antecedent is also the antecedent to what we are conscious of as jar, and that the two consequents, being unlike one another, cannot be respectively like their common antecedent; the validity of the argument depends wholly on the existence of the common antecedent as something that has remained unchanged while consciousness has been changing. If, after finding that the same tepid water may feel warm to one hand and cold to the other, it is inferred that warmth is relative to our own nature and our own state, the inference is valid only supposing the activity to which these different sensations are referred, is an activity out of ourselves which has not been modified by our own activities.

"One of two things must be asserted: either the antecedents of each feeling, or state of consciousness, exist only as previous feelings or states of consciousness; or else they, or some of them, exist apart from, or independently of, consciousness. If the first is asserted, then the proof that whatever we feel exists relatively to ourselves only, becomes doubly meaningless. To say that a sensation of sound and a sensation of jar cannot be respectively like their common antecedent because they are not like one another, is an empty proposition; since the two feelings of sound and jar never have a common antecedent in consciousness. The combination of feelings that is followed by the feeling of jar is never the same as the combination of feelings that is followed by the feeling of sound; and hence not having a common antecedent, it cannot be argued that they are unlike it. Moreover, if by antecedent is meant constant or uniform antecedent (and any other meaning is suicidal), then the proposition that the antecedent of sound exists only in consciousness is absolutely irreconcilable with the fact that the feeling of sound often abruptly breaks in upon the series of feelings otherwise determined, where no antecedent of the specified kind has occurred. The other alternative, therefore, that the active antecedent of each primary feeling exists independently of consciousness is the only

thinkable one. It is the one implicitly asserted in the very proposition that feelings are relative to our own natures; and it is taken for granted in every step of every argument by which this proposition is proved."

"Hence our firm belief in objective reality — a belief which metaphysical criticisms cannot for a moment shake. When we are taught that a piece of matter, regarded by us as existing externally, cannot be really known, but that we can know only certain impressions produced on us, we are yet, by the relativity of our thought, compelled to think of these in relation to a positive cause — the notion of a real existence which generated these impressions becomes nascent. The momentum of thought inevitably carries us beyond conditioned existence to unconditioned existence; and this ever persists in us as the body of a thought to which we can give no shape. . . . At the same time that by the laws of thought we are rigorously prevented from forming a conception of absolute existence, we are by the laws of thought equally prevented from ridding ourselves of the consciousness of absolute existence; this consciousness being, as we here see, the obverse of our self-consciousness. And since the only possible measure of relative validity among our beliefs is the degree of their persistence in opposition to the efforts made to change them, it follows

that this which persists at all times, under all circumstances, and cannot cease until consciousness ceases, has the highest validity of any."[1]

We have now reached a point at which we may make specific mention of the Scepticism of Hume, which is simply Idealism carried a step farther, to the denial of the existence of any subjective, as well as of any objective reality. It was easy for Hume, in criticising Berkeley, to show that we know no more of Mind in itself than of Matter in itself; since what we know is only our states of consciousness. But when Hume proceeded to argue that nothing can be known to exist save the series of impressions or states of consciousness which we interpret as occurring in ourselves, he fell into the very same error of inference into which Berkeley had fallen. We may admit, with Hume, that we know nothing directly save modifications of consciousness. Changes of consciousness are indeed the materials out of which our knowledge is entirely built. But there can be no changes in our consciousness unless there exist something which is changed, and something which causes the changes. There can be no impressions unless there exist a something which is impressed and a something which impresses. Take away from the argument all the terms which relate to real

[1] Spencer, *Principles of Psychology*, vol. i. p. 209 [§ 88]; *First Principles*, pp. 93–96 [§ 26].

existence, and the argument becomes nonsense. The Sceptic, like the Idealist, cannot stir a step without admitting that real existence which he is striving to deny. Abolish object and subject, and the states of consciousness vanish also. Abolish the noumenon, and the phenomenon is by the same act annihilated.

Thus our ineradicable belief in the absolute existence of Something which underlies and determines the series of changes which constitutes our consciousness rests upon the strongest of foundations, — upon the unthinkableness of its negation. Thus it becomes apparent that the arguments of the Idealists and the Sceptics "consist of a series of dependent propositions, no one of which possesses greater certainty than the single proposition to be disproved." Without postulating Absolute Being — existence independent of the conditions of the process of knowing — we can frame no theory whatever, either of internal or of external phenomena. And since, as I have already observed, what we mean by *reality* is "inexpugnable persistence in consciousness," it follows that Absolute Being is the Reality of Realities, and that we are justified in ever tacitly regarding it as such.

But now, what do we mean by this affirmation of absolute reality independent of the conditions of the process of knowing? Do we mean to recur to the style of thinking in vogue

anterior to Berkeley, and affirm, in language savouring strongly of scholasticism, that beneath the phenomena which we call subjective there is an occult substratum Mind, and beneath the phenomena which we call objective there is an occult substratum Matter? Our conclusion cannot be stated in any such form, and we need have no hesitation in acknowledging our debt of gratitude to Berkeley for having swept philosophy clean of such a rubbish of scholastic terminology. Our conclusion is simply this, that no theory of phenomena, external or internal, can be framed without postulating an Absolute Existence of which phenomena are the manifestations. And now let us carefully note what follows. We cannot identify this Absolute Existence with Mind, since what we know as Mind is a series of phenomenal manifestations: it was the irrefragable part of Hume's argument that, in the eye of science as in the eye of common sense, Mind means not the occult reality but the group of phenomena which we know as thoughts and feelings. Nor can we identify this Absolute Existence with Matter, since what we know as Matter is a series of phenomenal manifestations; it was the irrefragable part of Berkeley's argument that, in the eye of science as in the eye of common sense, Matter means not the occult reality but the group of phenomena which we know as extension, resist-

ance, colour, etc. Absolute Existence, therefore, — the Reality which persists independently of us, and of which Mind and Matter are the phenomenal manifestations, — cannot be identified either with Mind or with Matter. Thus is Materialism included in the same condemnation with Idealism.

See then how far we have travelled from the scholastic theory of occult substrata underlying each group of phenomena. These substrata were mere ghosts of the phenomena themselves; behind the tree or the mountain a sort of phantom tree or mountain which persists after the body of the perception has gone away with the departure of the percipient mind. Clearly this is no scientific interpretation of the facts, but is rather a specimen of naïve barbaric thought surviving in metaphysics. The tree or the mountain being groups of phenomena, what we assert as persisting independently of the percipient mind is a Something which we are unable to condition either as tree or as mountain.

And now we come down to the very bottom of the problem. Since we do postulate Absolute Existence, and do not postulate a particular occult substance underlying each group of phenomena, are we to be understood as implying that there is a single Being of which all phenomena, internal and external to consciousness, are manifestations? Such must seem to be the

inevitable conclusion, since we are able to carry on thinking at all, only under the relations of Difference and No-difference. We cognize any phenomenal object, as tree or mountain, only through certain likenesses and unlikenesses among our states of consciousness; and only through a revival of the same likenesses and unlikenesses can we represent the same object in memory or imagination. It may seem then that, since we cannot attribute to the Absolute Reality any relations of Difference, we must positively ascribe to it No-difference. Or, what is the same thing, in refusing to predicate multiplicity of it, do we not virtually predicate of it unity? We do, simply because we cannot think without so doing. Nevertheless, we must bear in mind that the relations of Difference and No-difference, under which we are compelled to do all our thinking, are relations just as subjective as any of the more complex relations of colour, or resistance, or figure, which are built up out of them; and we cannot say that there exists, independently of consciousness, anything answering to what we know as Difference or as No-difference. "This," to quote Mr. Spencer, "is readily demonstrable. The sole elements, and the indissoluble elements, of the relation [of Difference] are these: a kind of feeling of some kind; a feeling coming next to it, which, being distinguishable as another feeling, proves

itself to be not homogeneous with the first; a feeling of shock, more or less decided, accompanying the transition. This shock, which arises from the difference of the two feelings, becomes the measure of that difference — constitutes by its occurrence the consciousness of a relation of difference, and by its degree the consciousness of the amount of difference; that is, the relation of difference as present in consciousness is nothing more than a change in consciousness. How then can it resemble, or be in any way akin to, its source beyond consciousness? Here are two colours which we call unlike. As they exist objectively the two colours are quite independent — there is nothing between them answering to the change which results in us from contemplating first one and then the other. Apart from our consciousness they are not linked as are the two feelings they produce in us. Their relation as we think it, being nothing else than a change of our state, cannot possibly be parallel to anything between them, when they have both remained unchanged." [1]

Since, therefore, the relations of Difference and No-difference, which lie at the bottom of conceptions of unity and plurality, are shown to be subjective relations which cannot be predicated of objective existence, it follows that in strictness the Absolute Existence of which phe-

[1] Spencer, *Principles of Psychology*, vol. i. p. 224 [§ 93].

nomena are the manifestations cannot be regarded as either single or multiple. Nevertheless, as was hinted a moment ago, by the very relativity of our thinking we must speak of it as either the one or the other. From this dilemma there is no escape. Yet, provided we recognize the purely symbolic character of the language employed, we may speak of Absolute Existence in the singular number; especially if we bear in mind that by such a mode of expression we mean merely to indicate that while the nature of That which is manifested in phenomena proves to be inscrutable, "the order of its manifestations throughout all mental phenomena proves to be the same as the order of its manifestations throughout all material phenomena." [1]

Here we touch upon a point which cannot profitably be considered until after we have expounded the axiom of the Persistence of Force and the Doctrine of Evolution which is founded thereon. And before we can even begin with this exposition, there remain to be discussed sundry preliminary questions, which will occupy us through several chapters. For the present it will be enough for us to carry in mind, as the net result of the whole foregoing inquiry, the conclusion that the doctrine of relativity, when fully stated, affirms the objective existence

[1] Spencer, op. cit. vol. i. p. 627 [§ 273].

of an Unknowable Reality, of which all phenomena whatever are the knowable manifestations.

With the statement of this conclusion, our chapter properly ends. It is desirable, however, that, before proceeding to consider the questions next in order, we should briefly sum up the results at which we have already arrived. By adding a little here and a little there, now a definite outline and now a bit of shading, we have gradually produced a rough sketch of a general theory of things. The inquiry will proceed through future chapters, in the hope of slowly converting this rough sketch into a more or less finished picture; but for the moment we may advantageously take a step backward, and contemplate, in a single view, the main characteristics of our work.

At the outset our philosophy was seen to be characterized by the assertion that all knowledge is relative, — an assertion which carried with it the rejection of all ontological speculation, whether metaphysical or theological, concerning the nature of that which exists absolutely. But in thus characterizing our philosophy we went but halfway toward defining it. In order to know thoroughly what anything is, we must also know what it is not. Few philosophers, since the seventeenth century, have rejected the doc-

trine of relativity. The footing upon which this doctrine stands resembles too much the footing upon which rest the demonstrated truths of physical science, to admit of its being explicitly rejected, unless by those bold spirits who, like Hegel,[1] do not scruple to hurl their anathemas in the face of physical science itself. It is none the less quite possible for the doctrine to be at the same time explicitly asserted and implicitly ignored. Berkeley and Hume, Kant and Hamilton, and Comte, have one and all asserted the relativity of knowledge and the vanity of ontological speculation. But our philosophy is not that of Kant, or Hamilton, or Berkeley, or Hume, or Comte. It is not the philosophy of Kant, for it denies that we can have any criterion of truth save that which is furnished by perfect congruity of experience. At the same time it differs in many respects from the experience-philosophy which is associated with the name of Locke; since it denies that the subject is the

[1] Even Hegel, indeed, in the following passage, admits the impossibility of knowing things in themselves: "Das *Ding-an-sich* als solches ist nicht Anderes als die leere Abstraction, von dem man allerdings nichts wissen kann, eben daran weil es die Abstraction von aller Bestimmung sein soll." — *Logik*, ii. 127. The admission, however, is in Hegel's case utterly fruitless, since he falls into the same inconsistency as Kant, maintaining that we have a test of truth independent of experience, and thus setting up the Subjective Method, as will appear in the next chapter.

passive recipient of effects wrought by the object, and, accepting the Leibnitzian view that the subject actively coöperates with the object in each act of cognition, it grounds upon this very fact its doctrine of the relativity of knowledge. In its criterion of truth also it differs from the experience-philosophy of Locke and Hume as represented to-day by Mr. Mill; for it finds its criterion of truth in that indissoluble coherence among inner phenomena, which, in accordance with the postulate that all knowledge is the product of experience, must have been generated by an equally indissoluble coherence among outer phenomena. Thus, too, it avoids the empiricism which has in too many ways hampered the Lockian philosophy: for it keeps clear of the misconception that all truths are susceptible of logical demonstration, and recognizes the fact that at the bottom of all proof there must be an ultimate datum of consciousness which transcends proof. Thus our philosophy can be identified neither with that of Kant nor with that of Locke. Again, it differs from the philosophy of Hamilton, both in other points not needful to be mentioned, and in this, that it does not regard the assertion of the doctrine of relativity as compatible with the assertion that we can know the primary qualities of matter otherwise than as modifications of our consciousness. But, while refusing to assist

in this violation of the doctrine of relativity committed by the philosophy of Reid and Hamilton, it refuses also to join in the very different violation of the doctrine which is committed by the philosophy of Berkeley and Hume. For while it admits, to the fullest extent, the position that we can never know the Absolute Existence of which phenomena are the manifestations, it at the same time asserts that the doctrine of relativity cannot even be intelligibly expressed unless Absolute Existence is affirmed.

In this last assertion our philosophy declares itself antagonistic to Positivism. For the Positive Philosophy, refusing to deal with anything beyond the immediate content of observed facts, utterly ignores the Absolute Existence which is manifested in the world of phenomena, neither affirming nor denying it. I shall point out hereafter the complicated embarrassment in which this indifferent attitude has left the Positive Philosophy. It must suffice now to insist upon the fact that any philosophy which, like the system here expounded, affirms Absolute Existence is by such affirmation fundamentally distinguished from Positivism. Because our philosophy, like Positivism, rejects all ontological speculation; and because, like Positivism, it seeks to found itself upon scientific doctrines and employ none but scientific methods; and because, moreover, it is arrayed, like Positiv-

ism, in opposition to sundry popular metaphysical and theological doctrines; it is customary to confound our philosophy with Positivism, and thus to accredit us with a whole group of opinions which we unreservedly repudiate. Our philosophy, however, is quite as distinct from Positivism as it is from Idealism or Scepticism, or from the so-called Critical Philosophy of Kant. In all these systems we recognize a germ of truth; to all of them we acknowledge our indebtedness for sundry all-important suggestions; but to none of them do we owe allegiance.

In the case of Positivism, the error is, for reasons just now indicated, one which is likely to be often committed. And on this account I shall, in the course of the following exposition, have frequent occasion to examine and criticise the opinions characteristic of the Positive Philosophy. By the time we have arrived at the end of our journey, no possible excuse will be left available for those who would seek to identify our philosophy with Positivism.

But now for this system of philosophy, which, in our crude outline-sketch, is seen to be different from the systems of Locke, Berkeley, Hume, Kant, Hamilton, and Comte, some characteristic title is surely needed. There are, indeed, grave objections to be urged against fettering philosophy with names which may very

soon come to connote divers unessential opinions of which philosophy would be glad to rid itself. Nevertheless we cannot get along without names. If only to avoid tedious circumlocution, some name is needed by which to designate this philosophy which has been rudely delineated. The required name is suggested by the definition of the scope of philosophy given in the second chapter of this work. It was there shown that, while acknowledging a common genesis with science and with ordinary knowledge, philosophy has still to concern itself with those widest truths which hold throughout all classes of phenomena, and with which science, restricted as it is to the investigation of special classes of phenomena, is incompetent to deal. In other words, we declared the scope of our philosophy to be the study of the universe or Cosmos; and in accordance with this definition, we may fitly designate our philosophy as Cosmic Philosophy. We shall hereafter discover in this epithet sundry points of fitness not yet indicated. But for the present we may go on to use the phrase whenever required, intrusting our complete justification to the inquiries which are to follow.

In conclusion, let me say a few words in reply to the objection, sometimes urged from metaphysical quarters, that such a philosophy

as this Cosmic Philosophy, here sketched out, is not adequate to supply our highest intellectual needs. At the bottom of this objection, as at the bottom of that persistent clinging to ontological speculations (in spite of their often-demonstrated worthlessness) which we frequently meet with, there lies the vague half-defined belief that in giving up our knowledge of noumena or the Noumenon, we are leaving for ourselves nothing but shadows. "We increase the seeming unreality of that phenomenal existence which we can alone know, by contrasting it with a noumenal existence which we imagine would, if we could know it, be more truly real to us." But we are led astray by the unavoidable ambiguity of words. To make a supposition which savours somewhat strongly of hibernicism: even if we could know objects apart from the conditions imposed upon them in the act of knowing, such (so-called) knowledge would be utterly useless. This is admirably illustrated in a passage from Mr. Spencer's "First Principles" with which I will conclude this chapter: —

"The maintenance of a correspondence between internal actions and external actions, which both constitutes our life at each moment and is the means whereby life is continued through subsequent moments, merely requires that the agencies acting upon us shall be known in their

coexistences and sequences, and not that they shall be known in themselves. If *x* and *y* are two uniformly connected properties in some outer object, while *a* and *b* are the effects they produce in our consciousness; and if while the property *x* produces in us the indifferent mental state *a*, the property *y* produces in us the painful mental state *b* (answering to a physical injury); then, all that is requisite for our guidance, is, that *x* being the uniform accompaniment of *y* externally, *a* shall be the uniform accompaniment of *b* internally; so that when, by the presence of *x*, *a* is produced in consciousness, *b*, or rather the idea of *b*, shall follow it, and excite the motions by which the effect of *y* may be escaped. The sole need is that *a* and *b* and the relation between them, shall always answer to *x* and *y* and the relation between them. It matters nothing to us if *a* and *b* are like *x* and *y* or not. Could they be exactly identical with them, we should not be one whit the better off; and their total dissimilarity is no disadvantage to us."

Obviously this same illustration will apply equally to cases where moral injury or intellectual error is to be avoided. And since the ultimate function of philosophy is to be the intellectual guide of our lives, — since our ultimate aim in ascertaining the relations of coexistence and sequence among phenomena is to shape our

actions, physical, mental, and moral, in accordance with these relations, — it follows that the philosophy whose character and scope I have here indicated is sufficient for our highest needs. And thus we are led to the conclusion that the object of that metaphysical philosophy which seeks to ascertain the nature of things in themselves is not only unattainable, but would have no imaginable value, even if it could be attained. The proper attitude of the mind, when face to face with the Unknown Reality, is, therefore, not a speculative, but an emotional attitude. It belongs, as we shall by and by more distinctly see, not to Philosophy, but to Religion.

CHAPTER V

THE SUBJECTIVE AND OBJECTIVE METHODS[1]

TOWARD the close of the preceding chapter I enumerated some of the principal characteristics which distinguish our Cosmic Philosophy, regarded as a synthesis of scientific truths, from the various metaphysical systems which, by overtly or implicitly contravening the doctrine of relativity, have sought to arrive at some higher or remoter kind of truth than that which the scientific coördination of experiences can furnish. So far as the psychology of the question is concerned, the doctrine of relativity, with its various implications, has been expounded as fully as is needful for our purposes. But this fundamental doctrine has also an all-important logical aspect, which we shall do well to consider in the present chapter. Having marked out the field to which our inquiries must be confined, the next thing in order is to indicate the Method upon which our inquiries must be conducted. The possession of a legitimate method of research is even

[1] [See Introduction, § 11.]

more important than the possession of sound doctrine, since it is only through the former that the latter can be attained. Clearly we shall never reach Truth if we begin by mistaking our guide-post, and start on the road that leads to error. A false method leads to false doctrine which, reacting on the mind, confirms it in the employment of the false method. Hence the supreme importance which the history of philosophy attaches to those thinkers — like Aristotle, Bacon, Descartes, and Comte — who have signalized themselves as the founders of new methods. And hence the immense influence, for good or for ill, which such thinkers have exerted.

The two general views of philosophy which it has been the aim of the previous chapters to exhibit in radical opposition and contrast, are still farther distinguished by the adoption of two very different methods of inquiry. That metaphysical philosophy, which exhausts its energies in the vain attempt to frame tenable hypotheses concerning the objective order of things, reaches its ephemeral conclusions by the use of a method which, on grounds that will presently appear, is called the Subjective Method. The Cosmic Philosophy, which aims only to organize into a universal body of truth the sum of general conclusions obtained by science, adopts as the only trustworthy guide for

its inquiries the method of science, which, in contrast to the other, is called the Objective Method. To describe these different methods, and thus to arrive at a clear notion of the practical distinction between a metaphysical and a scientific philosophy, is the object of the present chapter.

The subjective method rests upon the assumption that the possibilities of thought are coextensive or identical with the possibilities of things. Having built upon some subjective foundation, assumed as axiomatic, a given order of conceptions, it assumes that the order of phenomena must correspond to it. It is satisfied with confronting one thought with another thought, and does not trouble itself to confront the thought with the phenomenon. If its hypothesis is made up of congruous elements, it takes it for granted that the internal congruity must be matched by an external congruity. It applies to the order of conceptions a logical, not an experimental test. If its conclusions flow inevitably from its premises, it proclaims the conclusions as true, forgetting that the premises need testing as much as the inferences. It is ever on its guard against fallacies of ratiocination, but ever unprotected against fallacies of observation. If a conclusion is "involved in the idea," according to the current phrase, it assumes without challenge that it is also con-

formable to fact. That I may not be supposed to be caricaturing instead of describing the only method which can enable us to stir one step in ontological speculation, let me cite some of the canons of that method, as enunciated by its most illustrious masters.[1]

"There is one basis of science," says Descartes, "one test and rule of truth, namely, that whatever is clearly and distinctly conceived is true." Schelling tells us: "It is a fundamental belief that not only do things exist independently of us, but that our ideas so completely correspond with them that there is nothing in the things which is not in our ideas." And now let us hear Hegel: "What is Truth? In ordinary language we name the concordance of an object with our conception of it, truth. In philosophical language, on the contrary, truth is the concordance of the meaning with itself." Or, as one of Hegel's followers expresses it, in more characteristic terminology: "Since the Whole is ideally in the Mind, the I has only to yield itself to its I-hood, in order to see the Absolute in itself as there immediately given." To the same effect says Plato, in the "Phædo:" "It seemed to me, therefore, that I ought to have recourse to reasons and in them to con-

[1] The illustrations given in the following paragraph may be found, along with others, in Mr. Lewes's excellent work on Aristotle, pp. 79–81, 103, 104.

template the truth of things. Thus always adducing the reason which I judge to be strongest, I pronounce that to be true which appears to me to accord with it; those which do not accord with it, I deny to be true." And in the "Republic," he tells us: "Whenever a person strives by the help of dialectics to start in pursuit of every reality by a simple process of reason independent of all sensuous information, never flinching until by an act of pure intelligence he has grasped the real nature of good, he arrives at the very end of the intellectual world."

Plato furnishes an excellent illustration of the statement above made, that a false method leads to false doctrine, which, reacting on the mind, confirms it in the employment of the false method. From the fact that a comparatively uninstructed mind can, with a little explanation, be made to perceive the necessary truth of a few simple geometrical axioms, and to follow the steps of a demonstration founded thereon, — Plato, in that charming dialogue, the "Meno," infers that all knowledge is reminiscence. How could the uneducated youth have come by that knowledge which enables him to see at once that when a square is divided by a line which bisects the two opposite sides, the two portions are equal? The naïve reply is, that he must have acquired it in a prior state of existence,

when the soul, not yet encumbered with the body, had free communion with Ideas. See what an enormous hypothesis Plato erects upon a slender basis of fact, and forthwith accepts as a justification of that very subjective method by the aid of which it was erected. For he elsewhere tells us that *since* all knowledge is a revival of preëxistent ideas, *therefore* "from any one idea we can arrive at all others, owing to the logical connection existing between them;" and in this conclusion he states the fundamental canon of the subjective method, as employed by modern metaphysicians from Descartes to Hegel.

This illustration shows us, in a curious and unexpected way, how intimately the Method of the *a priori* metaphysician is wrapped up with his Psychology, and how closely akin to each other have been the multifarious manifestations of the two in ancient and modern times. Between the subjective method and the doctrine of the *a priori* character of necessary truths the kinship is so close that Mr. Lewes is justified in declaring that "all that has been written on method [from the scientific point of view] is imperilled if there can be any valid evidence for the existence of an avenue through which knowledge may be reached without recourse to experience." Granting the *a priori* origin of necessary truths, the validity of the subjective method is estab-

lished, at least so far as transcendental inquiries are concerned. It is therefore interesting to observe the remarkable similarity between the positions held respectively by Plato, Descartes, and Kant, with reference to this twofold question. In each case the psychological problem is to explain the existence of knowledge, or at least of conceptive faculty, that is apparently congenital, and that is also apparently inexplicable as the product of individual experience. How does the uneducated youth come by his rapid intuition of space-relations? Plato, as we have seen, replies with his hypothesis of reminiscence, Descartes with his hypothesis of innate ideas, and Kant with his hypothesis of *a priori* forms of thought; and between the three answers, in spite of the wide superficial divergences, how striking is the fundamental similarity! We shall hereafter see how the Doctrine of Evolution, proceeding strictly upon the objective method, supplies us with an interpretation which adequately accounts for the phenomena, but which leaves no room for the inferences which metaphysicians, from Plato to Kant, have founded thereon. Meanwhile, it has already been sufficiently proved that the universality and necessity of unconditional propositions, whether relating to space-relations or to any other relations whatever, must inevitably result from absolute uniformity in the organic regis-

tration of experiences, and therefore does not involve any *a priori* element.

For the present, returning to Plato, let us note some of the results to which his method not unnaturally led him, especially as we shall thus perceive the true affiliation of modern metaphysics upon the crude attempts of the ancients at general science, in so far as concerns the method employed. "We open the Timæus," says Mr. Lewes, "and learn that the Universe was generated as an animal, with a soul, because that was best. Whatever is generated must necessarily have body, and be visible no less than tangible. Nothing can be visible without Fire, nothing tangible without a Solid, nothing solid without Earth. Thus the first step in creation was the production of two elements. But it is impossible for two things to cohere without the intervention of a third. A bond is necessary, and of all bonds the most beautiful is that which as nearly as possible unites into one both itself and the things bound. Had the substance of the universe been a superficies without depth, one medium or bond would have sufficed: but as it was a solid, and solids are never one only, but always joined by two bonds, therefore the Creator placed Water and Air between Fire and Earth. These are the Four Elements, and the reason has been given why they are only four. The elements are fashioned

into a perfect sphere, because the sphere is the most perfect of figures, and most resembles itself. Although this universe was made an animal, it was made becoming and congruous. Hence it had neither eyes nor ears, there being nothing external for it to see and hear; no lungs, for it needed no respiration; no digestive organs; no secretory organs; no feet, for its motion is peculiar, namely circular, and circular motion requires no feet, since it is not progression. The mathematicians having discovered the five regular solids, Plato naturally made great use of them in his cosmology. Four of them were represented by the four elements — the Earth was a Cube, Fire a Tetrahedron, Water an Octahedron, and Air an Icosahedron. This left the fifth, the Dodecahedron, without a representative; accordingly, it was assigned to the universe as a whole. . . . It is needless to add that Plato never thinks of offering any better reason for these propositions than that they are by him judged sufficient. If one of his hearers had asked him why water might not be a cube, and air an octahedron, — or what proof there was of either being one or the other, — he would have replied 'It is thus I conceive it. This is best.'[1] Let us proceed.

[1] It is to be noted, however, that this wildest use of the subjective method characterized Plato chiefly in his old age,

The universe, we learn, has a soul which moves in perpetual circles. Man also has a soul which is but a portion thereof, consequently it also moves in circles. To make the resemblance more complete, man's soul is also enclosed in a spherical body, — namely, the head. But the gods foresaw that this head, being spherical, would roll down the hills and could not ascend steep places; to prevent this, a body with limbs was added, that it might be a locomotive for the head." [2]

It will perhaps be said that such speculations as these could not be found in the writing of any modern philosopher, no matter what his method might be; yet in view of certain vagaries presently to be cited from Hegel and Comte, it will hardly be safe for us to seek refuge in any general assertion as to the superiority of the moderns over the ancients in sobriety of philosophizing. These speculations of Plato exhibit in strong relief the treacherousness of the subjective method when left to itself and allowed to range at large over the field of phenonena. In ancient times there was no organized physical knowledge to stand in the way of such vagaries as those just cited. In modern times there exists an immense body of estab-

when, like Comte, he had begun to assume a pontifical tone. Of this more anon.

[2] Lewes, *Aristotle*, p. 105.

lished scientific truth which checks the natural extravagance of the intellect left to itself. Moreover, as the subjective and objective methods have always coexisted, and as one has never been exclusively employed without the other, the majority of systems have worn a semblance of probability which prevents their shocking us like the almost purely subjective system of the Platonic "Timaios." Nevertheless, that even modern science, in all the plenitude of its power, is unable to rein in the obstinately metaphysical mind, may be seen in the following morsel from Hegel, of all modern thinkers the most consistent in his adherence to the subjective, and in his scorn of the objective method. "The substance or essence of matter," says Hegel, "is Gravity; that of spirit is Freedom. But matter is only heavy inasmuch as it tends to a centre. It is composite; its very existence is external to itself — *sie besteht ausser einander*. Thus the essence of matter consists in the search for a unity which would be its destruction." Speculations of this sort would not carry us very far toward the construction of a science of mechanics. Yet they are quite in keeping with the fundamental tenet "that Nature being only the result of the idea of a Creative Intelligence from which we ourselves emanate, we may, without the assistance of experience, and by our pure intellectual activity, find the Creator's ideas."

Compare also these explanations which the subjective method gives of the crying of newly born infants. Physiology explains this crying as the result of the novel impression of the cool atmosphere upon the surface of the infant's body, and of the sudden inrush of air into the lungs, which combine to excite the reflex action of screaming. If there is anything distinctly psychical about it — which is in the highest degree improbable — it could be merely a subconscious sense of discomfort. But according to Hegel, the cry of the child just born indicates "a revelation of his exalted nature." "His ideas being excited into activity, (!) the child feels himself straightway penetrated with the certitude that he has a right to exact from the external world the satisfaction of his needs, — that the external world compared to the soul amounts to nothing." According, however, to Hegel's follower, Michelet, the cry of the newborn child reveals "the horror felt by the soul at being enslaved to nature;" or according to another German writer, it is an outburst of wrath on the part of the newcomer at finding himself powerless against environing circumstances! Wherein is all this better than the cosmological vagaries of Plato? Or wherein is it better than the speculations of those early Christian theologians who adduced the crying of the new-born babe in proof of its innate

wickedness, and erected thereupon an argument in support of the doctrine that the unbaptized child is in danger of damnation?

These wilder extravagances of the subjective method may serve to illustrate for us the close kinship between metaphysics and mythology, and to justify the pregnant observation of Mr. Chauncey Wright, that the method of the *a priori* philosopher is but an evanescent form of the method employed by the barbarian in constructing his quaint theories of the universe. When deeply considered, the subjective method, whether employed by the metaphysician or by the myth-maker, will be seen to consist in following the lead of a train of associated ideas, without pausing to test the validity of the association by interpreting the ideas in terms of sensible experiences, — or, in other words, without confronting the order of conceptions with the observed or observable order of phenomena. As I have elsewhere observed, "it is through the operation of certain laws of ideal association that all human thinking, that of the highest as well as that of the lowest minds, is conducted; the discovery of the law of gravitation, as well as the invention of such a superstition as the Hand of Glory, is at bottom but a case of association of ideas. The difference between the scientific and the mythologic inference consists solely in the number of checks which in the

former case combine to prevent any other than the true conclusion from being framed into a proposition to which the mind assents. Countless accumulated experiences have taught the modern that there are many associations of ideas which do not correspond to any actual connection of cause and effect in the world of phenomena; and he has learned accordingly to apply to his newly framed notions the rigid test of Verification. Besides which the same accumulation of experiences has built up an organized structure of ideal associations into which only the less extravagant newly framed notions have any chance of fitting. The primitive man, or the modern savage who is to some extent his counterpart, must reason without the aid of these multifarious checks. That immense mass of associations which answer to what are called physical laws, and which in the mind of the civilized modern have become almost organic, have not been formed in the mind of the savage; nor has he learned the necessity of experimentally testing any of his newly framed notions, save perhaps a few of the commonest. Consequently, there is nothing but superficial analogy to guide the course of his thought hither or thither, and the conclusions at which he arrives will be determined by associations of ideas occurring apparently at haphazard.[1] Hence the

[1] Do we not see here how close is the connection, psycho-

quaint or grotesque fancies with which European and barbaric folk-lore is filled, in the framing of which the myth-maker was but reasoning according to the best methods at his command."[1] Obviously the broad contrast here indicated between modern and primeval thinking is at bottom simply the contrast between the use of the objective and the subjective methods, — between the constant recourse to experimental tests and the implicit reliance upon mere subjective congruity.

But it may fairly be urged that we ought to consider the subjective method as exhibited in some of its more plausible proceedings, if we would properly contrast it with the objective method by which scientific discoveries are made. Let us do so; and, as we have just now alluded to the discovery of the law of gravitation as an instance of association of ideas corroborated by the employment of the objective method, let us choose our example from the history of that

logically, between dreaming, insanity, myth-making, and reasoning according to the subjective method? It is not without reason that we commonly speak of the "dreams" of metaphysicians; and the distinguishing mark of insanity is the inability to test the validity of one's conceptions by confronting them with the phenomena. On the other hand it is in constantly applying the test of Verification that waking-thought, common sense, and scientific reasoning exhibit their kinship with one another.

[1] *Myths and Myth-makers*, p. 291.

discovery. Doubtless the reasoning seemed very sound and plausible to the Greeks, which, starting from the assumptions that the circle is the most perfect of figures, and that all motion is naturally circular, proceeded to the inferences that the planets move in circular orbits, and that their motion is uniform. For twenty centuries this reasoning passed unchallenged. Until Kepler's time no one thought it necessary to make observations and ascertain whether, as a matter of fact, the planetary orbits were circular; nor previous to Galileo did any one think of verifying the premise that all motion is naturally circular; nor did it occur to any one that the conclusion might not inevitably follow from the premise, — since the planets might, as in fact they do, move in an orbit which is not the natural path of motion when uninterfered with. Now mark how ill it fared with this subjective order of conceptions as soon as it was confronted with the order of phenomena. In the first place, Galileo proved, by reasoning upon direct observations, that all motion is naturally rectilinear and not circular, — that, if you could set a body moving, apart from all disturbing conditions, it would go on forever in a straight line. This destroyed the premise of the subjective syllogism. Secondly, Kepler proved, by actual observation, that the planets do not move in circular orbits, with a uniform rate of velocity; but

that they move in elliptic orbits, with a velocity which periodically increases and diminishes. This upset the subjective conclusion. And thirdly, the passage from premise to conclusion was seen to have been wrongly made, since while the planets would naturally move in straight lines (supposing the motion of each one to be independent), they do actually move in ellipses.

In this example is seen the essential vice of the subjective method, the feature by which it is distinguished from the objective method. It ignores Verification, which is the comparison, by means of observation, experiment, and deduction, of the order of conceptions with the order of phenomena. Now verification is the great engine of the objective method. That method takes little heed of the Cartesian maxim, that whatever complex proposition can be distinctly formulated must be true; the history of science having only too frequently shown that a proposition may be very distinctly formulated and yet be false. "That the velocity acquired by a falling body, at any point, must be proportional to the *space* through which it had fallen," was a very distinct and plausible hypothesis, so long as it was not confronted with the phenomena. Yet it did not withstand the application of the test of truth, "since its negation *was* thinkable, and there was the equally distinct idea of the velocity being proportional to

the *time* by which to oppose it. Then came the necessity for verification;" and by this criterion Galileo[1] ascertained that the first-named conception — the one which had been held by the ancients — was erroneous, "and although the alternative conception which replaced it was not more intelligible, it had the supreme advantage of being a more accurate description of the order of nature." Therefore "in all verifiable cases we dare not be confident that an explanation is true because its truth seems possible. Our conceptions of possibility are too contingent to form a secure ground of deduction. Thus, to Galileo, it at first seemed possible that velocity must be proportional to space, because, in so conceiving it, he had not distinctly visible to his mind *all* the elements of the problem; in other words, all the possibilities." But when, in the process of verification the omitted elements of the case were brought before the mind, he discovered "that the seeming possibility was a fiction." The other alternative, that velocity is proportional to time, was found to be the true one, and the only one which could withstand the application of the test of truth. The counter-proposition, that the velocity is not proportional to

[1] [On Galileo's procedure one may compare the recent critical discussion of Mach, in his *History of the Principles of Mechanics*, chap. ii. § 3 sqq.]

the time,[1] is strictly unthinkable. For it involves the assertion that the same amount of gravitative force will cause, in a given second of time, an increment of velocity which is either greater or less than the increment of velocity which it will cause in the succeeding second. We are required to suppose, in the first case, an addition to the velocity without any addition to the force which causes it; in the second case, we are required to suppose a subtraction from the velocity without any subtraction from the force; and therefore, in either case, we are required to frame in thought an equation between something and nothing, — which is impossible.

Thus the objective method starts by verifying its premise; and, not content with any apparent congruity in its syllogistic processes, it does not definitely accept the conclusion until that also has been confronted with the phenomena. And, if in the verified conclusion there is involved an unexplained residuum, far from giving up its conclusion out of deference to some imaginary subjective necessity, it acknowledges

[1] To speak of the velocity as *proportional* to the time is, however, a somewhat lax use of mechanical terminology. Strictly speaking, the velocity is a *function* of the time and of gravity. Since gravitative force increases as the body approaches the earth, there are increased increments of velocity in successive equal times. Introducing this correction into the sentences which follow, the reasoning becomes strictly accurate.

the need of a new search in order to account for such residuum. The old conclusion, that planetary motion is circular and uniform *because* motion is naturally circular and uniform, left no unexplained residual phenomenon. As an explanation it was complete, though utterly false. If asked *why* the planets move in circles with a uniform velocity, the ancients might have replied, and in fact did reply, that it is because their motion is uninterfered with. On the other hand Kepler's theorem, that planetary motion is elliptical and rhythmically accelerated and retarded, *although* motion is naturally rectilinear and uniform, left an unexplained residual phenomenon. As an explanation it was true, but it was incomplete. When asked *why* the planets do not move in straight lines with uniform velocity, Kepler recognized a difficulty which must be explained, and which he tried to solve. In his perplexity he had recourse to the subjective method, and suggested that the planets were perhaps living animals moved by their own volitions, or else that, as many of the Christian Fathers thought, they were controlled in their movements by presiding archangels. Could we read all the unwritten annals of that time, we should doubtless find that many educated persons rejected Kepler's discoveries on account of this unexplained residuum; attaching a higher value to the mutual congruity of a set of con-

ceptions than to their verification. And in fact we know that many refused to accept the discovery of the accelerated and retarded motion of the planets, on the subjective ground that it was "undignified" for heavenly bodies to hurry and slacken their pace according to Kepler's law.[1] Now mark the different behaviour of the objective method. Attaching a higher value to ascertained conformity with observation than to any presumed subjective congruity of conceptions, Newton recognized the "unnatural" elliptic motion of the planets and the "unnatural" variations of that motion as residual facts which needed to be explained by a verifiable hypothesis. Since the planets are deflected at every instant from the rectilinear paths in which their own momentum would forever carry them,

[1] On similar grounds the Aristotelians denied the existence of the solar spots; it being impossible "that the Eye of the Universe should suffer from ophthalmia." See Proctor, *The Sun*, p. 163. — "How can we admit that Nature could so restrict herself as to form all organic and inorganic combinations in the mould of four substances, chosen at hazard, — hydrogen, hydrochloric acid, water, and ammonia, — and to produce nothing but variations on these four themes?" Remark of Kolbe, cited in Wurtz, *Introduction to Chemical Philosophy*, p. 97. — And in like manner we sometimes hear silly people reject the Darwinian theory on grounds of "dignity," — it being supposed that we are, in some incomprehensible way, "degraded" by the discovery that our remote ancestors were dumb beasts.

there must be some unknown force acting in composition with their momentum. What is that unknown force? That it was the same as the force which causes apples to fall, that it varied in amount in an inverse ratio to the square of the distance between the sun and the planet, and would therefore cause acceleration or retardation of velocity according as the planet in its elliptic path approached or receded from the sun, — all this was a most brilliant hypothesis, alleging no unverifiable agency, disposing of the unexplained residual phenomena, and making the Keplerian order of conceptions completely congruous. According to the subjective method, this was quite enough. And doubtless if Newton's mind had been constructed like Hegel's, he would at once have announced his discovery on the strength of its presumed subjective necessity, and would have left it for some other more patient inquirer to verify its truth. But Newton, rigorously adhering to the objective method, saw that this was not enough. No matter how perfectly congruous the subjective order of conceptions may be in itself, it must be confronted with the observed order of phenomena and be shown to be congruous with that. According to the hypothesis the moon must be deflected on the average fifteen feet each minute from its natural rectilinear path. But Newton's own observations showed that this is not the

case: the moon is deflected thirteen feet in each minute, and thus was revealed a discrepancy between the order of conceptions and the order of phenomena. It must ever be regarded as a truly sublime illustration of the exalted scientific character of Newton's intellect, that in an age when the inexorable requirements of scientific method were generally so little understood, he laid aside for many years his brilliant and plausible conjecture, as being a hypothesis which observation refused to verify. It was thirteen years after this first abortive effort had been made, that Picard's careful measurement of an arc of the meridian revealed the fact that the length of the earth's radius, and consequently the distance of the moon, had hitherto been inaccurately estimated. Thus Newton was enabled to resume his calculations, and by introducing the corrections now rendered necessary, to ascertain that the amount of the moon's deflection, caused by the earth's attractive force, should be on the average thirteen feet per minute, as observation had shown to be the case. Thus, by the patient application of the objective method, the hypothesis of gravitation was verified, and became an expression of the observed order of phenomena.

I have dwelt at some length upon this concrete example, because it furnishes such manifold illustration of the difference between the metaphysical and the scientific modes of pro-

cedure. When rightly considered, it will also enable us to estimate at their proper value the claims of Bacon to be regarded as the chief inaugurator of modern philosophy, as well as the criticisms made upon those claims by Bacon's detractors. We frequently hear it said, on the one hand, that Bacon's great merit consisted in overthrowing the Deductive Method practised by the ancients, and in substituting for it the Inductive Method, upon which all modern scientific discoveries have been made. Now such assertions imply a total misconception of the true state of the case; and perhaps we cannot wonder that some critics believe that, in overthrowing them, they have removed Bacon from the high position which he has hitherto traditionally occupied. But this is a misconception as great as the other. The truth is, Bacon's admirers have advanced in his behalf claims which should never have been made; while, on the other hand, his detractors, in showing the futility of these claims, have not really succeeded in taking away one jot or tittle of his rightful fame. In point of fact, it was not Bacon's great merit, but his great deficiency, that he held in comparatively slight esteem the deductive method. This method is as trustworthy and as powerful as the inductive, provided it starts from verified premises, and ends by verifying its conclusions. Indeed, in several

of the sciences induction plays a quite subordinate part. Mathematics, mechanics and astronomy (so far, at least, as relates to the dynamics of the solar system) are almost purely deductive sciences, and in the chief problems of biology and political economy deduction is predominant. It was chiefly through deduction that Newton reached the law of gravitation, that Harvey discovered the circulation of the blood, that Goethe arrived at his grand generalizations concerning animal and vegetal morphology, and that Adam Smith obtained the fundamental principles of political economy. These facts are well known to Bacon's adversaries, who remind us also that, unlike Descartes, he never made any discoveries himself, and who further assert, with some exaggeration, that he never even worked out a scheme of induction which could be adopted and utilized by subsequent thinkers. It is true that Bacon never mastered any one science, as Descartes and Leibnitz mastered mathematics. Knowing little of mathematics he underrated the deductive method, which moreover had not yet been illustrated by the splendid triumphs of astronomy and physiology, and which to his mind was chiefly exemplified in what seemed to him the barren word-battles of the scholastic metaphysicians. It is also true that Bacon did not construct a thorough system of inductive logic whereby to illustrate his method. That

great achievement was reserved for Comte and Mill; and indeed would have been utterly impossible at any time before the present century, during which the methods of the two chief inductive sciences, chemistry and molecular physics, have first been practically exemplified. All this we may cheerfully admit, without feeling called upon to abate our veneration for Bacon in the least. For after all this has been granted, the fact still remains that Bacon saw, more clearly than any of his great contemporaries, that the subjective method had been definitely weighed in the balance and found wanting, and that henceforth Verification must be insisted on as the essential prerequisite for every trustworthy conclusion. This was the all-important truth which Bacon set forth again and again, impressing it upon men's minds with that majestic eloquence and prodigious fertility of illustration which characterize all his philosophical writings. Nor was he blind to the inevitable results of banishing the subjective method. Bacon saw and declared that ontological inquiries, as not admitting of verification, must be condemned as fruitless; and he was the first to form that grand conception of philosophy, as an organic whole of which the sciences and scientific methods are the organs, which I endeavoured to describe in the second chapter of this work.

The popular misconception of the nature of

Bacon's achievements rests upon a not unnatural confusion between the subjective and the deductive methods. The subjective method is indeed mainly deductive, but that is not the source of its weakness. It is not in reasoning downward from a general proposition to a special conclusion that the danger lies. The danger is in reasoning from an unverified premise to a conclusion which you do not stop to verify. Here we come upon the weak point in the system of Descartes. A mathematician whose genius and achievements have perhaps never been equalled save by Newton, Leibnitz, and Lagrange, — Descartes was not likely to underrate the value of deduction; but he overlooked the necessity for constant verification. Though his scientific career was far more brilliant than Bacon's, — if, indeed, the latter can be said to have had any scientific career, — his conception of philosophy was far less defensible than Bacon's conception. He admitted the necessity of verification in the so-called physical sciences; but between physiology and psychology he drew an arbitrary line, and thought that in the so-called moral sciences which lie beyond that line verification might safely be dispensed with. Here, in this higher region, he said, all we have to do is first clearly to conceive some premise, and then to reason away *ad libitum*, as in mathematics, never fearing that the order of concep-

tions may not correspond with the order of phenomena. And this view of metaphysical method is grounded upon the psychological error, that in our transcendental or extra-sensible conceptions of Space, Time, Causality, etc., we possess "innate ideas" endued with a validity quite independent of experience, so that inferences logically deduced from such "innate ideas" can afford to dispense with objective verification.[1] The results of these incompatible teachings are written in history. In science Descartes has been the forerunner of Euler, D'Alembert, Lagrange, Laplace, Fresnel, Leverrier, and Helmholtz: in philosophy he has been the forerunner of Spinoza and Malebranche, Schelling, and Hegel.

The subjective method, as laid down by Descartes, has been carried out in metaphysics by

1 "The truth of a proposition is not given simply by showing that it is a necessary consequence from some preceding proposition; *that* is only showing the logical operation to have been irreproachable; and an operation may be accurately performed although its premises are inexact." Lewes, *Problems of Life and Mind*, vol. i. p. 381. — Of course Descartes, as a mathematician familiar with the process of *reductio ad absurdum*, would freely admit this. But he would claim that there are sundry premises which, as being framed *a priori* in accordance with the constitution of the thinking mind, are not amenable to the jurisdiction of experience; and that hence conclusions drawn from these premises need be submitted only to a logical test.

no one more rigorously than by Spinoza, the most inexorable in logical consistency of all metaphysicians. With mathematical nicety Spinoza reasoned out a complete system of ontology, in which the conclusions are so inseparably bound up with the postulates that in order to overthrow them it is necessary to begin by invalidating the postulates. Could he have verified his postulates, he might have given us the outlines of a system of absolute truth, thus attaining a more wondrous eminence than Galileo or Newton. Unfortunately his postulates are just the kind of propositions of which it must be said that they can neither be established nor refuted: the data for verifying them are inaccessible, and must ever remain so. His system rests on the assumption that the noumenal cause is like the phenomenal effect as rendered in terms of consciousness, so that whatever is true of the one is *ipso facto* true of the other. Herein lay Spinoza's error. Here is the fundamental distinction between the deductive method as employed in mathematics, and as employed by Spinoza in metaphysics. Mathematics starts from simple propositions concerning quantitative relations of number and extension, which are verified once for all by a direct appeal to experience: it proceeds from the known to the unknown. Metaphysics, as treated by Spinoza, starts from complex propositions concerning

substance *per se* and *causa efficiens*, which have not been and cannot be verified. It ventures into the unknown without having first secured a basis of operations in the known. So that, while Hegel was undoubtedly justified, from his own point of view, in declaring that the philosopher must either be a Spinozist or nothing, our refuge from the dilemma is to be found in our denial of the validity of that subjective method by the aid of which Hegel and Spinoza reached their conclusions. The method of mathematical deduction, as legitimately applied by Newton to verifiable postulates, led to a discovery prolific in permanent and magnificent results; as illegitimately applied by Spinoza to unverifiable postulates, it led to an isolated system of ontology, barren of results, accepted in its inexorable completeness by no one, — yet irrefutable, save by the refutation of all metaphysics.

Spinoza's ontological conclusions, being at once obnoxious and apparently inevitable, produced a crisis in philosophy, serving to raise doubts as to the validity of the subjective method, and to call in question the truth of the postulate that whatever is in the Idea is also in the Fact. It was thought necessary to stop and reconsider the processes by which our initial conceptions in metaphysics are obtained; and thus for more than a century pure ontological

speculation was subordinated to psychological inquiries. Thus arose the great English school, whose especial function, with regard to metaphysics, has been to demonstrate, on psychological grounds, the relativity of all knowledge. This movement, begun by Hobbes and continued by Locke and Berkeley, though productive of many brilliant and permanent scientific results, was suicidal so far as metaphysics is concerned, for, as we saw in the preceding chapter, it has ended in the Scepticism of Hume, and the Positivism of Comte and Mill. The researches of Hobbes on the laws of association, the admirable though incomplete analysis of mental operations achieved by Locke, and Berkeley's explanation of the phenomena of vision were genuine additions to our knowledge. But, as has frequently been pointed out, they were obtained only through the employment of the objective method. The precepts of Bacon, so thoroughly in harmony with the cautious and practical temper of the English mind, led these great thinkers to forsake the high road of *a priori* ratiocination for the surer though more tortuous path of patient observation; and so long as they adhered to psychology, they were really scientific inquirers, as much as if they had been physiologists or chemists. This departure from metaphysics was carried still farther by Hartley, who, working the deep-

est vein of the Lockian philosophy, prepared the way for James Mill to bring psychology still more thoroughly under the sway of scientific methods. But the imperfect condition of biology prevented the significance of this movement from being detected in the eighteenth century. The labours of Hartley were almost entirely overshadowed by the superficial sensationalism of Condillac and the crude materialism of Helvétius and Holbach. The distinctly inferior character of French psychological speculation since the death of Malebranche appears strikingly, both in these shallow systems and in the spiritualistic reaction against them which the present century has seen conducted by Laromiguière and Victor Cousin ; a philosophy made up of mere tawdry rhetoric, quite innocent of observation and induction,[1] resting on passionate appeals to the testimony of "*le cœur ;*" which finally, in our own times, has (it would appear) harangued itself to death. But in Eng-

[1] "Quiconque entre dans l'étude de l'esprit humain par la voie de la réflexion, marche droit au but. Quiconque ne suit d'autre méthode que la méthode expérimentale de Bacon et de Newton, ne court pas le risque, il est vrai, de tomber dans les hypothèses extravagantes, mais se condamne à des circuits immenses qui aboutissent à des résultats médiocres." Cousin, *Philosophie Ecossaise*, p. 307. — A fair sample of M. Cousin's appreciation of scientific method. The discovery of the law of gravitation, I suppose, was one of these "résultats médiocres"!

land and Germany things took a different course. The Scepticism of Hume, as the most conspicuous consequence of Berkeley's profound analysis, produced a second crisis in philosophy, and led Kant to re-examine the psychological problem, in the hope of arriving at some positive result. We have already remarked upon the inconsistency in Kant's final conclusions; demonstrating as he did, on the one hand, the relativity of knowledge, yet on the other hand maintaining that in necessary truths we possess a kind of knowledge not ultimately referable to the registration of experiences. We have now to note how Hegel has based upon this doctrine of *a priori* knowledge an explicit and uncompromising assertion of the validity of the subjective method, which by reason of its very outspokenness proclaims itself as the *reductio ad absurdum* of metaphysics.

Starting from the postulate that deductions from *a priori* premises furnished by pure reason have a higher validity than inductions from premises supplied by sensible experience, Hegel speedily arrives at an ingenious solution of the antinomies which baffle the ordinary thinker who seeks to frame hypotheses concerning objective reality. The customary rules of ratiocination, based upon a collation of the results of sensible experience, are set aside with a high hand. If it be declared that we can and do

cognize objects apart from the limitations imposed by our intelligence, the apparent contradiction in terms is no obstacle to Hegel. There is a contradiction, no doubt, but what of that? Truth has been vulgarly supposed to consist in agreement. Not a bit of it: it consists in contradiction. This is one of the fundamental postulates of the Hegelian logic. The Test of Truth is not that "A is A," but that "A is *not* A." Everything which is, is that which it is not.[1] Non-existence exists, because it is a thought; pure Being also, in the absence of determinative conditions, is not distinguishable from Not-being; therefore Non-existence is the same as Existence, and contraries are identical. An idea is not a modification of the subject; an idea is the object. In coming into existence,

[1] In a certain sense this statement is profoundly true. Nothing is itself without being to some extent something else. Or, in other words, it is impossible sharply to demarcate an individual entity from the remainder of existence, and to cognize it in individual isolation and completeness. For the simplest act of cognition involves a lapse of time, during which the individual entity cognized has lost certain attributes and acquired certain others, and has thus become different from itself. This is the obverse of the scientific truth that nowhere is there such a thing as Rest, or the maintenance of a given *status*, — a truth which lies at the bottom of the Doctrine of Evolution. Hegel's fault, however, is that he does not use this truth scientifically, but employs it as a formula to conjure with.

the Idea comes into non-existence; it negatives itself. "But the process does not stop there. The negation itself must be negatived. By this negation of its negation, the Idea returns to its primitive force. But it is no longer the same. It has developed all that it contained. It has absorbed its contrary. Thus the negation of the negation, by *suppressing* the negation, at the same time *preserves* it." *This* side of the room is *the other side;* because, if you turn around, *this* is *that*, and *that* is *this;* and consequently everything is its own opposite. Everything is thus made easy. We may say, for instance, that matter is infinitely divisible, because it follows *ipso facto* that it is not infinitely divisible, and thus the Gordian Knot is cut.

In the eye of science, as in the eye of common-sense, all this is supremely ridiculous — the very enthronement of Unreason. Yet the significance of the whole is lost if we fail to remember that Hegel was not a fool or a lunatic, but was unquestionably one of the clearest, strongest, and most consecutive reasoners that the world has ever seen. Much has been said of the unintelligibleness of Hegel,[1] and many

[1] The story is current that on being asked to explain some difficult passage written years before, the great metaphysician gave it up in despair, saying: "When I wrote that passage, there were two who understood it, — God and myself. Now,

a witticism has been made at his expense. But the unintelligibleness of Hegel does not result from indistinctness of thought or slovenliness of expression. On the contrary, it seems to me that his thoughts — or rather, perhaps, the symbols of his thoughts — are very distinct, and that his style of expression is remarkably simple, clear, and direct. When by chance he treats of sublunary topics, his style is often as pithy and lucid as M. Taine's. And had the contents of his thinking consisted of propositions formed from the colligation of sensible experiences, instead of propositions built up of empty verbal symbols, he would no doubt have taken rank among the greatest of the teachers of mankind. The world-wide difference between Hegel and Mr. Spencer, for example, does not consist chiefly in the fact that the latter is a clearer, more patient, and more logical reasoner; it consists chiefly in the fact that the symbols with which Mr. Spencer does his thinking are translatable in terms of sensible experience, while the symbols employed by Hegel are not thus translatable. The difference is, in the main, a difference of method. Indeed, when a man of Hegel's vast ability gives to the world, as the result of a whole

alas, God alone understands it!" A myth, no doubt, but crudely characteristic, like most myths.

life's arduous toil, such a system as the logic of contradictories above described, it is evident that there must be something incurably vicious in the method upon which he has proceeded. Yet that method is the subjective method in its absolute purity. Starting with the assumption that whatever is in the idea is in the fact, it makes but a short step to the assumption that whatever is in the word is in the fact. It mistakes words for ideas, and ideas for facts. Hobbes has somewhere said that "words are the counters of wise men, but the money of fools." They are certainly the money of Hegelism. That philosophy is built up of propositions which are verbally faultless, but which correspond to no reality, which are in the likeness of nothing existing or, in the true sense of the word, conceivable, in either the heavens above, or the earth beneath, or the waters under the earth. The contempt of Hegel for those deluded creatures, like Newton, who have spent their time in investigating facts, is both amusing and instructive. Far be it from Hegel's logic that it should stoop to look at facts. It makes a statement which is verbally perfect, and if the facts do not confirm it, so much the worse for the facts. Goethe, in one of his conversations with Eckermann, tells a pithy story about the founding of St. Petersburg. The Czar wished it to be situated on

the low ground at the mouth of the Neva, so that it might resemble the Amsterdam where he had lived in his youth. An old sailor remonstrated, telling him that a town in that locality would be troubled by the frequent overflowing of the river; and pointed to an ancient tree upon which were marked the various heights to which the water had in past times ascended. But Peter refused to believe the testimony; the tree was cut down, that its unwelcome evidence might be suppressed, and the work of building went on. This was what Hegelism would be if carried out practically and transferred from the world of supra-sensibles to the world of phenomena. When a fact is unwelcome, just take the principle of contradiction and cut it down. Hegel will not hear of verification; he looks with unutterable scorn upon such men as Bacon for insisting upon the necessity of it. And we need not therefore be surprised when we find him proclaiming the philosophic superiority of the Ptolemaic astronomy over the Copernican, for the subjective reason that it consorts better with the dignity of man that he should occupy the central point of the universe!

This opens to us a new point of view. Hegel is virtually a pre-Copernican. For him modern science and its methods are practically non-existent. His philosophy was born too late. It

belongs to the twelfth century rather than to the nineteenth. He is a schoolman reared out of season. Here, I believe, we have the key to Hegel's position.

The realistic tendency — the disposition to mistake words for things — is a vice inherent in all ordinary thinking. It is a vice from which every thinker who would arrive at truth must begin by freeing himself. In all ages men have fought over words, without waiting to know what the words really signified. Even great thinkers do not always escape the temptation. Mr. Mill, for example, speaks of Cæsar's "overthrowing a free government" as if Cæsar had been a contemporary of Pitt. He reasons solely on the strength of the word "free," forgetting that the "free government" overthrown by Cæsar was in reality a detestable mixture of despotism and anarchy. Words indeed are the money of all of us, until we learn, by severe discipline, to regard them merely as counters. But it was in the Middle Ages that realism was most uncurbed. In those days men maintained, with sober faces, that because we talk about Man in the abstract, there is an actually existing thing called Man, distinct alike from all individual men and from all men taken collectively. This and that man exist; all men exist; and Man exists likewise, — such was one of the fundamental theorems of the realistic

philosophy.[1] Scholasticism was a long and hard-fought dialectic battle, in the course of which this realism, as an avowed system, was at last utterly routed. And the great result of scholasticism was the purification of Latin philosophic terminology from its realistic implications. By that long contest, which on a superficial view seems so barren of result, the English as well as the French, and all languages which derive their philosophic nomenclature from the Latin, have been incalculably benefited. There was no likelihood of a Hegel in any language which had passed through the scholastic furnace. But German had never passed through such an ordeal. Its philosophic terms had never been reduced to their real value. As Mr. Lewes very happily observes, it did not recognize the old *ignis fatuus* in its new *Irrlicht*. Nowhere but in Germany would a Hegel have been possible in the nineteenth century. And that the peculiarities of the German language are to a great extent respon-

[1] "In the great mediæval doctrine of transubstantiation, the schoolman would have been the first to admit that no chemical analysis would detect any change in the consecrated elements. But he asserted that the individuality of the bread (its breadness) was exchanged for the individuality of Christ (his humano-divinity)." Pearson, *Early and Middle Ages of England*, vol. i. p. 613. — An excellent illustration of the realistic method. It was a noumenal, not a phenomenal, change: the latter would have been "transaccidentation."

sible for his aberrations, has been acknowledged by later German critics. The testimony of Büchner, which on most vital points of philosophy I should be very slow to cite, is quite admissible here: "The playing with high-sounding but thoroughly empty words has been the fatal vice of German philosophy. . . . We have often with justice been advised to translate our philosophic treatises into a foreign tongue, in order to rid them of their unintelligible verbiage. But assuredly few of them could bear the test." A similar complaint, with especial reference to Hegel, has been made by Schopenhauer.[1]

Again, let us not fail to observe that in characterizing Hegel's logic of contradictories as repugnant to common-sense, we urge an objection which, however valid it may seem to us, would to one in Hegel's position have no weight whatever. For Hegel's fundamental postulate is that deductions from *a priori* premises furnished by pure reason have an incomparably higher valid-

[1] Schopenhauer, indeed, quite loses his patience over Hegel's verbal legerdemain, and calls him a "geistlosen, unwissenden, Unsinn schmierenden, die Köpfe durch beispiellos hohlen Wortkram von Grund aus und auf immer desorganisirenden Philosophaster." (!) I quote from memory, and cannot now recover the passage where this outbreak occurs. [The passage occurs in Schopenhauer's essay on the *Satz vom Grunde*, 4tes Kapitel, § 20 (Grisebach's Edition, Bd. iii. p. 53). Fiske has quoted it quite accurately.]

ity than inductions from premises supplied by sensible experiences; and consequently, while we are seeking to found philosophy in common-sense — or in science, which is simply common-sense rectified, extended, and methodized, — Hegel, on the other hand, entertains no such purpose. Philosophy, with him, lies quite out of the range of common-sense, — which is merely the organization of sensible experiences, — and if there be conflict between the deliverances of the two, it is common-sense that must go to the wall. With this perfectly logical, though practically absurd conclusion, we may fitly compare Schelling's declaration that philosophic truth is to be attained only through the exercise of a faculty superior to reason; which faculty Schelling called "Intellectual Intuition." This "was not supposed to be a faculty common to all men; on the contrary, it was held as the endowment only of a few of the privileged: it was the faculty for philosophizing. Schelling expresses his disdain for those who talk about not comprehending the highest truths of philosophy. 'Really,' he exclaims, 'one sees not wherefore Philosophy should pay any attention whatever to Incapacity. It is better rather that we should isolate Philosophy from all the ordinary routes, and keep it so separated from ordinary knowledge that none of these routes should lead to it. The highest truths of

topics, which being placed immediately after the other in his collected works, received the title of *τὰ μετὰ τὰ φυσικά*, or "Things-which-come-after-the-Physics." It was in this way that the term came into use; and it needs but little playing with the elastic significance of the preposition, to arrive at a thoroughly just idea of the meaning of the expression. Metaphysics, thus considered, means a set of inquiries which lie beyond the bounds of Physics. Physics, in the widest sense of the word, dealing solely with phenomena in their relations of coexistence and succession, metaphysics deals with something lying beyond the phenomena. A physical explanation is content with analyzing phenomena as it finds them; a metaphysical explanation is not content until it has added something not given in the phenomena. Metaphysics, therefore, is not confined to psychology, but may deal with any subject, and has in fact obtruded its explanations upon most subjects. When mercury was seen to rise in a tube, in apparent contradiction to the general phenomena of gravity, metaphysics said that it was because "Nature abhorred a vacuum." Physics, without going beyond the facts given in the case, explained it by a reference to the pressure of the atmosphere upon the mercury without the tube. So the phenomena of causation were metaphysically explained by the sup-

position of a specific hidden power in the cause, which constrains the effect to follow. Hume denied the existence of any such specific hidden power, and his denial was also metaphysical, because neither the presence nor the absence of such a specific power is a necessary inference from the phenomena. If we would keep clear of metaphysics, we must in such a case neither affirm nor deny concerning a subject which lies utterly beyond our reach. Physics knows nothing of causation except that it is the invariable and unconditional sequence of one event upon another: whether the one event, in a metaphysical sense, *constrains* the other to follow it or not we cannot tell. Physics knows nothing of such constraint — neither that it exists, nor that it does not exist.

For the moment I have, somewhat too freely, used the word "physics" as synonymous with "science;" for I have aimed at bringing out the fundamental distinction between metaphysics and science, which is this: *A scientific explanation is a hypothesis which admits of verification, — it can be either proved or disproved; while a metaphysical explanation is a hypothesis which does not admit of verification, — it can neither be proved nor disproved.* Newton's hypothesis of gravitation, to account for the planetary motions, was strictly scientific; and so was Descartes' hypothesis of vortices, to account

for the same phenomena. The former admitted of proof, and the latter admitted of disproof. But Stahl's hypothesis of a Vital Principle, to account for the phenomena of life, was strictly metaphysical. Whether it is true or not, we can never know. Push our researches as far as we may, we can know life only as the assemblage of certain phenomena, displaying the activity of certain forces. Whether in addition to this there is a Vital Principle or not, no amount of research can ever tell us. Science has simply nothing to do with it.

Thus we see that the fundamental difference between metaphysics and science is the difference between the subjective and the objective methods. That the difference in method is more fundamental than the difference in the character of the objects which are studied, is shown by the fact that "a theory may be transferred from metaphysics to science, or from science to metaphysics, simply by the addition or the withdrawal of its verifiable element." Thus, as Mr. Lewes observes, "the law of universal attraction becomes pure metaphysics if we withdraw from it the verifiable specification of its mode of operation. *Withdraw* the formula, 'inversely as the square of the distance and directly as the mass,' and Attraction is left standing — a mere 'occult quality.' Indeed the Cartesians reproached it with being such an oc-

George Henry Lewes

cult quality, and stigmatized it as a revival of Aristotelianism. On the other hand, *add* this verifiable formula to the 'inherent virtue' of the old metaphysicists, and the result is a strictly scientific proposition."[1]

Here also is revealed the inherent weakness of metaphysics: it is incapable of making discoveries. For verification is absolutely essential to discovery. No theorem can be accepted as a discovery until it has been verified, and the theorems of metaphysics do not admit of verification. Hence the utter barrenness of the metaphysical method. From Thales downwards — according to the current reproach — philosophers have been disputing over the first principles of their subject, and are now no nearer to a solution than when they began to dispute. It is not, however, as is sometimes superficially supposed, because metaphysicians disagree that their method must be rejected by any philosophy which would found itself upon science; but it is because their disagreement can never end in agreement, — can never lead to knowledge. Since there will always be room for difference of opinion on many subjects, until the human mind shall have explained and classified all the phenomena of nature, it cannot be demanded of any system of philosophy that it shall admit only such conclusions as are not

[1] Lewes, *Aristotle*, p. 84.

open to controversy. Such a requirement would virtually prohibit philosophy altogether. The difference between a scientific and a metaphysical theorem is not that the former is not open to controversy, but that it admits of verification; it can, either now or at some future time, be proved to be either true or false. All such theorems may be admitted by a scientific philosophy. Until they have been verified, we may take account of them provisionally, as legitimate hypotheses: after they have been put to a crucial test, we may either incorporate them with our philosophy or definitely abandon them. Our philosophy, therefore, like all the sciences whence it obtains the general truths which it seeks to organize into a body of universal truth, may admit any number of subjects of dispute, but it can admit no question as a fit subject of dispute which, from the nature of the case, can never be settled. It is perfectly in keeping, for example, for two upholders of the Doctrine of Evolution, as well as for two scientific specialists committed to no general doctrine, to hold opposite views concerning the hypothesis of spontaneous generation. Since this is strictly a scientific hypothesis, dealing solely with phenomena, and invoking no unknowable agencies; and since there is no reason, in the nature of things, why it should not sooner or later be established or overthrown by

some crucial experiment; there is nothing anomalous in the fact of two such thoroughly scientific evolutionists as Professor Huxley and Dr. Bastian holding opposite opinions as to its merits.[1] But it would not be in keeping for two scientific philosophers to wrangle over Leibnitz's doctrine of Pre-established Harmony, because that is a hypothesis which can never be proved or disproved. The data necessary for its verification do not exist, and therefore no system of philosophy, which would keep clear of metaphysics, can recognize it as a legitimate subject for investigation. Again, in the eighteenth century there were two rival theories of light. According to the theory of Newton, a ray of light is a linear series of material corpuscles, darted from the luminous object. According to the theory of Huyghens, a ray of light is a system of molecular undulations which move outward in ever-increasing concentric shells whose normals are radial, and which are set in motion by undulations among the molecules of the luminous object. At the beginning of the present century the corpuscular theory was submitted to a set of crucial investigations which overthrew it; and more recently the undulatory theory has been submitted to a course of crucial

[1] [As is well known, this controversy has now long since been settled, against the hypothesis of "spontaneous generation" as held by Dr. Bastian at the time here in question.]

investigation which has finally established it.[1] Both these theories were scientific in conception, and previous to the researches of Young and Fresnel a scientific philosopher might have consistently espoused either. Such are the controversies of science, which sooner or later have always led, and will always lead, to agreement and to knowledge. Far different is it with the disputes of metaphysics, which — conducted upon the subjective method, and dealing with unverifiable hypotheses — have never led, and can never lead, to anything but an endless renewal of dispute, *in sæcula sæculorum.*

In this condemnation of the subjective method, the Cosmic Philosophy here expounded is entirely in harmony with the Positive Philosophy, as set forth in Comte's first great work, and as held by M. Littré and Mr. Mill. Indeed there is probably nothing in the present chapter which might not be cited by the Positivist in confirmation of his opinions as to the limits of philosophical inquiry. The Positive Philosophy is based upon the assertion of the relativity of all knowledge; and however fatally inadequate may have been its psychological interpretation of that doctrine, there is no

[1] [Fiske would now no longer say of the undulatory theory, in its ancient form, that it is "finally established," in view of the modifications in the doctrine of the nature of light due to the modern electro-magnetic theory.]

ground for accusing it — as represented by Mr. Mill and M. Littré — of inconsistency in its adherence to the scientific method for which the doctrine of relativity supplies the justification. Since Bacon's time there have been few thinkers who have insisted more strenuously than Comte upon the necessity of distinguishing between legitimate and illegitimate hypotheses, or who have more clearly prescribed the conditions under which alone can any given hypothesis be regarded as legitimate. Unfortunately, by a strange and ironical fate, the writer who contributed so much toward the establishment of sound methods of philosophizing lived to become a proficient in the subjective method, a pitiless scorner of crucial experiments, and a weaver of vagaries which might well be matched with those above cited from Plato and Hegel. The historical importance of this phenomenon is great enough to justify us in treating it at some length.

Though in Comte's earlier works a somewhat obtuse sense of the requirements of verification is now and then to be noticed; and though there is a tendency, which visibly increases toward the end of the "Philosophie Positive," to substitute intensely dogmatic *ex cathedra* dicta in the place of arguments; yet the necessity for strict obedience to the objective method is nowhere explicitly denied. It

is insisted, with entire justice, that every hypothesis which does not admit of verification should be remorselessly discarded from philosophy; and that even a veritable hypothesis should never be incorporated as a part of philosophy or science until it has been actually verified. Far different is the attitude taken by Comte in his later works, when he is attempting to reconstruct society. In the "Politique Positive" he begins by endeavouring to reinstate the subjective method; deluding himself, by a play upon words, into the belief that that method can be so reformed as to become available in the search for positive truths. "The subjective method," he tells us, "possesses striking advantages which can alone compensate for the inconveniences of the objective method." This unhappy sentence is of itself enough to show how far the writer had strayed from positive grounds. Here we see the necessity for constant verification characterized as an "inconvenience," and the liberty to string together premises and conclusions without ever stopping to test their conformity to facts is called a "striking advantage." Nothing could be more thoroughly metaphysical in temper. The "inconvenience" of the objective method is the inconvenience of being often obliged to stop and confess our ignorance of many things we should like to know, our lack of many data we should

be glad to possess. The "striking advantage" of the subjective method is no other than the advantage enjoyed by the metaphysician of being permitted to persuade himself that he has arrived at complete knowledge because he has never stopped to confront the order of his conceptions with the order of phenomena. But let us continue with Comte: "Our logical system can be rendered complete and durable only by the intimate union of the two methods. History does not authorize us to regard them as radically irreconcilable, provided that both are systematically regenerated in accordance with their common function, intellectual and social. To yield to theology the exclusive privilege of using the subjective method is as unnecessary as to see in theology the only legitimate basis of religious feeling. If sociology may possess the latter, it may also possess the former, as the two are intimately connected. To this end it is enough that the subjective method, renouncing the vain search into efficient and final causes, should henceforth, like the objective method, be employed solely in the discovery of natural laws, whereby our social condition may be ameliorated." [1]

I do not know where one could find a passage, in the literature of modern philosophy, more lamentably confused in its ideas than this.

[1] *Politique Positive*, tom. i. p. 455.

The subjective method says that verification is not necessary; the objective method says that verification is necessary; and yet we are told that the two are not "radically irreconcilable"! It is proposed to "regenerate" the subjective method: yet there is no way of regenerating it save by forcing it to verify its premises and conclusions; and when this is done, it ceases to be the subjective and becomes the objective method. But Comte thinks this is not necessary; the subjective method may be used provided it be employed only upon scientific questions, only in ascertaining the laws of phenomena. That is to say, as long as you confine yourself to scientific questions, and leave theology and metaphysics alone, you may imagine some plausible hypothesis and then reason away until you have worked out a whole theory of natural phenomena, never stopping to observe or experiment, but dogmatically proclaiming your conclusions as infallible because they seem to flow logically from the premises! Can it be that we are here listening to the man who spent one half of his life in investigating the history of science, — the man whose labours did so much toward renovating inductive logic? The whole history of science proclaims the utter absurdity of the position taken by Comte. The subjective method has been employed, from the earliest times, upon purely scientific questions

which took no note of causes, efficient or final; and its eternal impotence is illustrated upon every page of the annals of scientific error. In molar physics, it led to the doctrine that all motion is naturally circular; in astronomy it persuaded men that the sun and planets move in circular orbits about the central earth; in chemistry it instigated many generations of experimenters to the fruitless effort to convert lead or iron into gold; in physiology it suggested the notion that the arteries are air vessels, and caused that notion to be held for centuries; in pathology it sanctioned the fallacy that fever is an unnatural exaltation of the powers of the organism, — a fallacy which has sacrificed many a valuable life to the lancet; in political economy it favoured the delusion, born of selfish instincts, that the commercial interests of each community are antagonistic to those of the communities with which it trades, — a delusion which is responsible for much foolish warfare, and which underlies the whole iniquitous system of so-called " protective " tariffs by which so many countries are even yet impoverished. Verily this illegitimate deduction, which verifies neither premise nor conclusion, but relies wholly on subjective coherence, has been tried quite long enough by the test which Comte recommends for it. Just so far as men have verified their hypotheses, either by direct obser-

vation, or by deduction based on observation, have they extended the boundaries of knowledge. Just so far as they have neglected such verification have they gone astray amid the countless vagaries which have ever loved to encumber the path of scientific inquiry. To admit that we do not know what we have not verified requires rare self-denial, no doubt; a self-denial to which nothing, save the patient habit of scientific inquiry, can fully accustom us. This is the "inconvenience" of which Comte speaks, as attaching to the objective method. But mankind are fast reaching philosophic maturity; and we are already getting too thoroughly used to the requirements of science to be much longer content with the childish device of playing that whatever is in our ideas is in the facts. Whatever may be our failings in practice, we have become nearly unanimous in the declaration that before any hypothesis can be accepted it must be verified.

Strange that in the latter half of the nineteenth century these criticisms should still need to be made! Stranger still that they should be called forth by the writings of the great successor of Bacon and organizer of positive philosophy! Strangest of all that able men should still be found so imbued with the spirit of discipleship as to resort to all manner of logical subterfuges in order to destroy their force!

Yet to show that I have by no means exaggerated the perversity of Comte's position, let me cite a page from Mr. Mill. "Among all the aberrations of scientific men, Comte thinks none greater than the pedantic anxiety they show for complete proof, and perfect rationalization of scientific processes. It ought to be enough that the doctrines afford an explanation of phenomena, consistent with itself and with known facts, and that the processes are justified by their fruits. This over-anxiety for proof, he complains, is breaking down by vain scruples the knowledge which seemed to have been obtained; witness the present state of chemistry [in 1854]. The demand of proof for what has been accepted by Humanity . . . is a revolt against the traditions of the human race. So early had the new High Priest adopted the feelings and taken up the inheritance of the old." Mr. Mill goes on to remark upon the new sense in which he began to employ his famous aphorism that "the empire of the dead over the living continually increases." "As is not uncommon with him, he introduces the dictum in one sense and uses it in another. What he at first means by it is, that as civilization advances, the sum of our possessions, physical and intellectual, is due in a decreasing proportion to ourselves, and in an increasing one to our progenitors. The use he makes of it is,

that we should submit ourselves more and more implicitly to the authority of previous generations, and suffer ourselves less and less to doubt their judgment, or test by our own reason the grounds of their opinions. The unwillingness of the human intellect and conscience, in their present state of 'anarchy,' to sign their own abdication, he calls 'the insurrection of the living against the dead.' To this complexion has positive philosophy come at last!"[1]

To realize the completeness of the break between Comte's earlier and later speculations, we have only to remember that the deepest of all the distinctions which he sought to establish between positive philosophy on the one hand and metaphysics and theology on the other is the ineffaceable distinction of method: the one insists upon objective verification, while the others are content with subjective congruity. Yet here we see Comte explicitly and with vehement dogmatism repudiating observation and experiment, and maintaining, as unreservedly as Hegel, that so long as our conceptions are systematic and mutually harmonious, it makes no difference whether they are verified or not!

It would be an interesting study to trace in detail the circumstances concerned in bringing about this singular aberration of a great sci-

[1] Mill, *Auguste Comte and Positivism*, p. 162.

entific intellect. For while the proclamation of the subjective method, and its more or less consistent employment, by Descartes and Hegel, was logically based upon their erroneous psychological theories concerning the sources of knowledge; on the other hand, this metamorphosis in the opinions of Comte had no logical justification whatever, but was determined by circumstances of a purely personal character. It was due partly to what I may call the impatience of constructiveness, — the imperious mental demand for the erection of a system at whatever cost, — and partly upon the exaggerated overestimate of self which is a symptom of incipient monomania.

In his youth Comte was an insatiable reader, and before he began the work of constructing the Positive Philosophy he had amassed vast stores of learning in almost every department of knowledge. There is no good reason for doubting that in 1830, when the publication of his great work began, he was, with a few serious exceptions, fully abreast of the best science of the times. But in the course of the twelve years during which the composition of this work went on, he found it desirable to alter his habits of study. Finding that constant attention to the progress of events interrupted the consecutive development of his thoughts, he began to abstain from all reading whatever,

save in a few of his favourite poets. Still later in life he erected this practice into a general principle of action, and as a matter of conscience refused to take any note of the proceedings going on about him in the intellectual world. He utterly neglected not only newspapers, but also contemporary works on science, and even scientific periodicals, and devoted himself almost exclusively to music and to æsthetic or devotional literature, such as Homer, Dante, Thomas à Kempis, St. Augustine and Bossuet, Molière, Fielding and Lesage. This holding aloof from the course of contemporary speculation he called "cerebral hygiene." It should rather be regarded as a source of mental one-sidedness than as a source of mental health. I have no intention of depreciating the vast amount of invaluable food for thought which is to be obtained from the study of such books as those just named. Without studying Homer and Dante and Molière and the rest, one can get but a very meagre notion of human history as concretely revealed in the thoughts of past generations. Nor can it be denied that there was much that was truly sensible in Comte's plan of leaving off study when about to write. The successful expositor of a system of thought is not the man who is always cramming, and who perhaps keeps but a few weeks in advance of the particular theme

which he is expounding. It is the man who by long years of patient thinking has completely mastered the system, and has it so thoroughly elaborated in his mind that he can sit down and write it out of the fulness of his knowledge, without needing to look at books. And in such cases it is no doubt desirable to shut one's self up and allow nothing to distract the mind until the work is accomplished. So far, Comte was doubtless wise in doing as he did. But beyond this point, there is no wisdom in keeping aloof from contemporary matters. As soon as writing is done, reading should begin again; every conclusion should be carefully verified, and every statement revised in the light of the newest science. Otherwise room is left for the subjective method to enter, and opportunity is given the mind to tickle itself with the belief that it has reached finality on some points. There is no safety for the thinker who isolates himself, year after year, from the work which his contemporaries are doing. Such a proceeding, as Comte's experience is enough to show, is fraught with grave dangers, both intellectual and moral. The intellectual danger is that the thinker will be left hopelessly in the rear of the scientific movement of the age; will lose, from lack of the requisite stimulus supplied by open criticism and argument, the habit of bringing all his conclusions to the test of verification;

and will thus gradually fall into the habit of reasoning upon his plausible hypotheses as if they were established. The moral danger is that which menaces all isolation, social or intellectual, — the danger of excessive egoism, of over-confidence in one's own conclusions, and an undue respect for one's own achievements. It is well enough for a writer to be dogmatic, provided his dogmatism is sustained by vigorous argument. But the writer is past all hope who habitually thinks to make loud assertion do the duty of argument; and this is a habit into which every one is more or less liable to fall who is not constantly coming in contact with other thinkers, and forced continually to defend his conclusions by the objective appeal to universally admitted principles.

I believe these considerations will go far toward accounting for the unfortunate position taken by Comte toward the close of his life. Always of a warm and enthusiastic temperament, self-confident to an inordinate degree, and vain with more than a Frenchman's vanity, during his long period of isolation these traits and tendencies were unduly strengthened. The consciousness — to a certain extent well founded — of the grandeur of the task which he had accomplished, grew upon him apace; and not taking note of the serious defects and omissions which advancing science was constantly

disclosing in that work, he became more and more settled in the conviction that it was final, so far as it had gone. Measuring all his newly framed hypotheses solely by their congruity with the general system of his conceptions, he gradually lost the scientific habit. He ceased to take into account the fact that what seemed a necessary inference to him would not necessarily seem so to minds differently moulded, unless sustained by the requisite proofs. Thus he emerged from the scientific into a pontifical state of mind, in which, just as with Plato in his old age, it was enough that an opinion seemed true to him for him straightway to proclaim it as binding on all men.[1] Moreover it

[1] In its initial scientific attitude, and in its final grotesque vagaries, the career of Plato's mind may be instructively compared with that of Comte's. In his earlier dialogues Plato professes to be, like Sokrates, a mere investigator of the methods by which trustworthy knowledge is obtained; just as Comte, in his first great work, is simply a coördinator of scientific methods and doctrines. In the *Parmenides* and *Theaitetos*, indeed, we may find, as strikingly presented as in any modern treatise, the antinomies or alternative impossibilities which, like the lions before Palace Beautiful, confront the pilgrim on either hand whenever he seeks to cross the barrier which divides the realm of science from that of metaphysics. But at a later period we find Plato, like Comte, renouncing the scientific attitude, and setting himself up as the founder of an ideal Community, in which the pervading tendencies which have shaped actual societies were to be ignored or overridden, and in which existence was to be made intolerable to all per-

should be supplied by fictitious "constructions of the reason," so that our craving for symmetry may be appeased. Above all, science must be as far as possible deprived of its "dryness," and vivified by "sentiment." To this end it is well to accustom ourselves to the belief that all nature is alive, and that inorganic bodies, for instance, exert volition and feel what is done to them! Fetishism is, in express terms, restored, and we are invited to adore the Earth as the *Grande Fétiche*. This great fetish is supposed to have planned a shrewd system of shocks or explosions, by which to render its orbit less eccentric and the inclination of its axis better fitted for the requirements of the *Grand Être*, the Human Race. But even this is not enough to satisfy the demands of "*le cœur*." We must adore whatever is useful to Humanity, and therefore must erect Space into a deity, and endow it with feeling, though not with intelligence. Not only physics but mathematics also must be made religious. And thus we reach the Comtist Trinity, — Humanity, the Grand Being; Earth, the Grand Fetish; and Space, the Grand Medium!!! Decimal numeration is to be abandoned in favour of a septimal system; because *seven* is a sacred number, and moreover a prime number, incapable of division, and therefore well adapted to impress us with a due sense of the weakness of

the human mind and the limitations of thought! This is the wonderful philosophy which is thought worthy to take the place of the vain inquiries which scientific men still obstinately persist in making, into the motions of the stars, the undulations of atoms, and the development of organic life upon the globe!

Thus we might go on citing page after page of the most extravagant vagaries ever conceived outside of Bedlam; or, remembering the many valuable services for which mankind must ever be grateful to Comte, we might less harshly, and not less truly, call them the most mournful exhibition furnished by the annals of philosophy, of a great mind utterly shattered and ruined. Mr. Lewes rejects somewhat vehemently the suggestion of M. Littré, that these wild fancies are evidence of actual insanity.[1] For my own part, I do not see what there is unsound or uncharitable in M. Littré's suggestion. The only healthful activity of the mind is an objective activity, in which there is as little brooding over self as possible. The less we think of ourselves, and the more we think of our work, the better. Dwelling on subjective fancies rarely fails to throw the mind out of balance; it is at the bottom of all religious melancholia and suicidal monomania, as well as of many other forms of cerebral disease. For a

[1] *History of Philosophy*, 3d edition, vol. ii. p. 583.

dozen or fifteen years, Comte's life was such as to make a man insane, if anything could; and we should not forget, whatever may be the physiological significance of the fact, that in his early manhood he had experienced a violent attack of acute mania. His astounding self-conceit was more akin to that which may be seen in lunatic asylums than to anything which is known to have been manifested by persons in a state of health. I am strongly inclined to believe that the harmonious activity of his brain never fully recovered from the shock given it by that first attack. Very likely that attack is partly responsible for the self-brooding tendency which led him to abandon the world, and lead a secluded life among his own unbridled fancies. And it is not improbable that this long-continued self-communion carried him on the road to chronic subacute monomania, until, when he wrote the "Synthèse Subjective," he had just overstepped the ill-defined limit which divides precarious cerebral health from pronounced cerebral disease. Nevertheless this hypothesis, though it seems most plausible, is perhaps not absolutely required by the facts. In this chapter we have seen how an exclusive reliance on the subjective method has bred in others besides Comte the most shocking extravagances. It may be, after all, that Comte's vagaries are not so very much wilder than those

of Hegel and Plato; since Plato's absurdities are less in conflict with the scientific knowledge of the times in which they were conceived, and Hegel's are veiled by the dense obscurity of a pompous metaphysical terminology. When Hegel tells us that "*Seyn ist Seyn, und nicht Anders: Anders ist Anders, und nicht Seyn*" (Being is Being, and not Otherwise: Otherwise is Otherwise, and not Being), we are overawed perhaps, but not immediately disgusted. There is an air of excessive profundity about the oracular dictum, and for a moment we think there may perhaps be something in it which does not appear on the surface — some occult verity which, as Hegelians tell us, fifty years more of enlightenment may enable us to realize. But Comte's thoughts are presented, not in the muddiest technical German, but in the clearest idiomatic French: when he makes the earth a fetish, and talks about a dance of the planets, the idea stands out in all its naked absurdity. In spite of all this, however, I am inclined to believe that Comte sounded a deeper depth of extravagance than either Plato or Hegel. Insanity is, after all, only the excessive lack of correspondence between the order of conceptions and the order of phenomena. That is what we mean when we characterize it as delusion or hallucination. And when we avowedly employ a method which never deigns to adapt the internal order

to the external order, there is no foreseeing the depth of the ditch in which we may be landed. The difference between the delusion which we regard as compatible with sanity, and that which we commiserate as insane, is mainly a difference of degree. And whether we are to call Comte crazy or not, is to a great extent a question of terminology. Certain it is, that if Adelung had lived to witness Comte's latest speculations, he might have found in them the materials for a more wonderful chapter than any of those now contained in his voluminous "History of Human Error."

In these interesting vagaries we may find renewed evidence of the close kinship between the "dreams" of the ontologist, the fancies of the myth-maker, and the hallucinations of the insane, in so far as concerns the method employed. Nevertheless it would be highly unjust to hold the Positive Philosophy responsible for these inanities, or for those of the pseudo-positivists who would seem to set larger store by their master's personal shortcomings than by his permanently valuable contributions to philosophy. Not only the disciple, but also the impartial critic, may fairly urge that the Positive Philosophy is something greater than Comte, just as the differential calculus is something greater than Newton or Leibnitz. If Newton, in his old age, had become so far lost to all sense of

scientific propriety as to apply his method of fluxions to the solution of physiological or ethical problems, much discredit would have attached to Newton, but none to the method of fluxions. Succeeding inquirers would have criticised him in the light of his own principles, and would have felt obliged to mourn the decadence of his godlike intellect, but the question would have been mainly a personal one, affecting in no way our estimate of the Newtonian mathematics. In like manner, when we characterize Comte's later speculations as vagaries hardly compatible with sanity, we cast no discredit upon the Positive Philosophy, since our whole argument implies that these speculations were conducted in utter disregard of those canons of research which it is the chief glory of the Positive Philosophy to have instituted. It is one of Comte's most legitimate claims to immortal remembrance that, with greater authority and far wider scientific resources than Bacon, he succeeded in introducing the objective method into departments of research where previously metaphysical interpretations had reigned supreme and unquestioned. For this he must ever be regarded as one of the worthiest among the "servants and interpreters of Nature." And it is mainly because of his preeminence as an inaugurator of scientific method that it has become customary to identify with Positivism every philosophy which, like the sys-

tem expounded in this work, seeks to give synthetic expression to the ripest scientific thought of our age. If the question were only one of method, we might acquiesce in this identification. But as I have already plainly indicated and shall presently show more fully, our divergence from Positivism is so fundamental with regard to the deepest and gravest questions with which Philosophy is concerned, that, as Comte would unquestionably repudiate us as disciples, so do we unhesitatingly repudiate him as a master.

CHAPTER VI

CAUSATION[1]

IN the course of our examination of the Kantian doctrine of Necessary Truths, the origin and justification of our belief in the necessity of causation was incidentally discussed. We found that this belief can be explained and defended only as the product of a mental limitation due to absolute uniformity of experience. We believe that, under the requisite conditions, fire burned before we were born, that it now burns in regions to which we have never had access, and that it will continue to burn as long as the world lasts, simply because we are incapable of forming conceptions of which the materials are not supplied by experience, and because experience has never presented to our consciousness an instance of fire which, under the requisite conditions for burning, did not burn. Or, in other words, we believe that in the absence of preventive conditions, fire must always and everywhere burn, because our concept of fire is the concept of a thing which burns, and this concept has been formed exclusively by our ex-

[1] [See Introduction, § 12.]

perience of fire. You may, like a mediæval sorcerer, envelop your hand in a soapy substance which will, for a few moments, check oxidation of the epidermis; or you may insert your hand in the blaze and withdraw it again so quickly that, since chemical action takes time, oxidation will not have a chance to begin, and your skin will escape; — these are disturbing conditions. But to say that, in the absence of such conditions, the blaze will not burn your inserted hand, is to state a proposition which is unthinkable, — a proposition of which the elements cannot be united in thought save by their mutual destruction. Why is this proposition unthinkable? It is because not only the material of our knowledge but our very mental structure itself, as I shall hereafter show, is due solely to that perpetual intercourse between subject and object which we call experience, — so that, whatever verbal feats we may succeed in accomplishing, we can unite in thought no subject and predicate for the union of which experience has not in some way or other supplied the conditions. I do not mean to say that the proposition in question is not one which some ingenious person might stoutly maintain as a theory. We might, no doubt, hold the theory that Fire does not burn, just as we might espouse the doctrine that Triangles are circular, or that Matter is destructible. But as was sufficiently proved in the

chapter on the Test of Truth, this shows only that it is possible for men to accept and defend propositions which they cannot truly conceive. It is easy to state the proposition that the Whole is equal to its Part; but it is none the less impossible to think the thought or no-thought, which the proposition seeks to express.[1] We are under a mental compulsion to think of the whole as greater than its part, and to think of fire as a thing which burns, because the conditions of our thinking have been prescribed by that intercourse between our mind and environing agencies which we call experience.

It is for the same reason that the mind is compelled to believe in the necessity of causation, and that the cultivated mind, which can realize all the essential conditions of the case, is compelled to believe in its universality. For what is the belief in the necessity and universality of causation? It is the belief that every event must be determined by some preceding event and must itself determine some succeeding event. And what is an event? It is a manifestation of force. The falling of a stone, the union of two gases, the blowing of a wind, the breaking of

[1] [Had Fiske's attention been later attracted to those recent mathematical theories of Dedekind and Cantor which rest upon the exact definition and clear conception of infinite assemblages of objects in which the Whole is equal to the Part, he might have modified this opinion.]

wood or glass, the vibration of a cord, the expansion of a heated body, the sprouting of a seed, the circulation of blood, the development of inflammation, the contracting of a muscle, the thinking of a thought, the excitement of an emotion, — all these are manifestations of force. To speak of an event which is not a manifestation of force, is to use language which is empty of significance. Therefore our belief in the necessity and universality of causation is the belief that every manifestation of force must be preceded and succeeded by some equivalent manifestation. Or, in an ultimate analysis, it is the belief that force, as manifested to our consciousness, can neither arise out of nothing nor lapse into nothing — can neither be created nor annihilated. And the negation of this belief is unthinkable; since to think it would be to perform the impossible task of establishing in thought an equation between something and nothing.

This, I suppose, is what Sir William Hamilton had in his mind when he asserted that our belief in the necessity and universality of causation is due to an original impotence of the conceptive faculty, — to our inability to conceive absolute beginning or absolute ending. In his examination of Hamilton's philosophy, Mr. Mill has made sad havoc of some of the crude and hasty statements, and yet more unfortunate theological illustrations, in which Hamilton

couched this doctrine; but the doctrine itself he seems to have misunderstood rather than refuted. His favourite argument — that at one stage of philosophic culture we can conceive what at an earlier or later stage we could not conceive — rests upon a confusion of language which I trust has been sufficiently shown up in the course of the foregoing discussion. As I have already said, the only kind of inconceivability which we can admit as such is an impotence which results from the very constitution of the thinking process. As was shown in the first chapter on the Relativity of Knowledge, this is the case with our inability to conceive absolute beginning or absolute ending. We must therefore, to a certain extent, accept the Hamiltonian doctrine that our belief in the necessity and universality of causation is due to an original impotence of the conceptive faculty; save that an ultimate psychological analysis obliges us to regard this original impotence as simply the obverse of our inability to transcend our experience.

Here again we come upon a bit of common ground which underlies two opposing philosophies. For our last sentence, in its assertion and in its proviso, recognizes both aspects of the universal truth of which Kant and Hamilton on the one hand, and Hume and Mill on the other hand, have persisted in recognizing only

one aspect. Here again we see exemplified what our sketch of the Newtonian discovery in the previous chapter taught us, — namely, the value of that objective method which, instead of ignoring an unexplained residuum, recognizes it as justifying further research. The unexplained residuum in the present case was the coexistence of an element of necessity in a given belief with an experiential origin for the belief. Following the subjective method, Hume denied the necessity, Kant denied the experiential origin. But the objective method, recognizing the coexistence of the two as a fact to be accounted for, and employing a psychological analysis inaccessible to Hume and Kant, discovers that the necessity of the belief and its experiential origin are but two sides of the same fundamental fact.

From the origin and justification of our belief in causation, let us now pass to the contents of the belief. Since there is nothing in the belief that has not been given in experience, let us endeavour to state what is and what is not given in our experience of an act of causation. In the first place *sequence* is clearly given in the phenomenon. "Even granting that an effect may commence simultaneously with its cause," this view is in no way practically invalidated. As Mr. Mill says, "Whether the cause and its effect be necessarily successive or not, the be-

ginning of a phenomenon is what implies a cause, and causation is the law of the succession of phenomena. . . . I have no objection to define a cause, the assemblage of phenomena, which occurring, some phenomenon invariably commences, or has its origin. Whether the effect coincides in point of time with, or immediately follows, the hindmost of its conditions, is immaterial. At all events it does not precede it; and when we are in doubt, between two coexistent phenomena, which is cause and which is effect, we rightly deem the question solved if we can ascertain which of them preceded the other." [1]

Secondly, *invariableness* of sequence is given in our experience of causation. Invariableness is the chief mark by which we distinguish those sequences which are causal from those sequences which are commonly termed accidental. The well-known fallacy of *post hoc, ergo propter hoc*, upon which are founded most of the current hygienic and therapeutic vagaries which claim to be upheld by experience, arises from the neglect of this essential distinction. It lumps together all kinds of sequence under the general head of causation. If drinking a cup of coffee is followed by headache, or if a troublesome fit of indigestion ends after taking a dose of patent medicine, it is rashly inferred that the coffee

[1] Mill, *System of Logic*, 6th edition, vol. i. p. 384.

caused the headache, or that the medicine cured the indigestion. This is not legitimate induction. The sequence may be accidental and not causal. The headache may have been caused by eating hot risen biscuit, by inhaling carbonic oxide sent up from the furnace, by overwork, or by loss of sleep; or it may be the premonitory symptom of a typhoid fever due to imperfect drainage. The indigestion may have been cured by a ride on horseback, or by a walk on a frosty morning, or by a piece of good news, or by a rhythmical increase in the rate of nutrition for which no definite external cause is assignable. It is the business of induction to eliminate, as far as possible, all these coexistent possible causes, so as to ascertain, after the elimination, whether the sequence between the presumed cause and the effect is invariable. If it turns out to be so, and, still better, if by reasoning deductively from the experimentally ascertained action of the coffee or the medicine upon the organic tissues involved in the case, further proof of the invariableness of the given sequences can be obtained, — then we say that we have detected a case of true causation. When we have extended our inquiries in any case so far as to be able to predicate invariable sequence, then we predicate causation.

A moment's reflection, however, will show us that there are sequences which have been in-

variable throughout the whole course of human experience, but which are not regarded as causal sequences. Ever since there have been conscious minds to interpret phenomena, day has followed night, and night has followed day, and yet no one would say that day causes night, or that night causes day. In order to include such cases as this, we must limit still further our definition of causation. The sequence must be *unconditional* as well as invariable. This, as Mr. Mill observes, "is what writers mean when they say that the notion of cause involves the idea of necessity. If there be any meaning which confessedly belongs to the term 'necessity,' it is *unconditionalness*.[1] That which is necessary, that which *must* be, means that which will be, whatever supposition we may make in regard to all other things. The succession of day and night evidently is not necessary in this sense. It is conditional on the occurrence of other antecedents. That which will be followed by a given consequent when, and only when, some third circumstance also exists, is not the cause, even though no case should ever have occurred in which the phenomenon took place without it." Now, either day or night "might have existed for any length of time, and the other not have followed the sooner for its existence:

[1] This, it will be seen, agrees with Mr. Lewes's admirable view of Necessity, cited above in chapter iii.

day follows night only if certain other antecedents [the presence of the sun above the horizon, and the absence of any eclipsing opaque body from the direct path of the solar rays] exist; and where those antecedents existed, it would follow in any case. No one, probably, ever called night the cause of day; mankind must so soon have arrived at the very obvious generalization, that the state of general illumination which we call day would follow from the presence of a sufficiently luminous body, whether darkness had preceded or not."

Mr. Mill's further explanation of this point is so luminous that I prefer to cite it in his own words, rather than to abridge and dilute it. "To some," says Mr. Mill, "it may appear that the sequence between night and day being invariable in our experience, we have as much ground in this case as experience can give in any case, for recognizing the two phenomena as cause and effect; and that to say that more is necessary — to require a belief that the succession is unconditional, or in other words that it would be invariable under all changes of circumstances, is to acknowledge in causation an element of belief not derived from experience. The answer to this is, that it is experience itself which teaches us that one uniformity of sequence is conditional and another uncondi-

tional. When we judge that the succession of night and day is a derivative sequence, depending on something else, we proceed on grounds of experience. It is the evidence of experience which convinces us that day could equally exist without being followed by night, and that night could equally exist without being followed by day. To say that these beliefs 'are not generated by our mere observation of sequence,' is to forget that twice in every twenty-four hours, when the sky is clear, we have an *experimentum crucis* that the cause of day is the sun. We have an experimental knowledge of the sun which justifies us on experimental grounds in concluding, that if the sun were always above the horizon there would be day, though there had been no night, and that if the sun were always below the horizon there would be night, though there had been no day. We thus know from experience that the succession of night and day is not unconditional. Let me add, that the antecedent which is only conditionally invariable is not the invariable antecedent. Though a fact may, in experience, have always been followed by another fact, yet if the remainder of our experience teaches us that it might not always be so followed, or if the experience itself is such as leaves room for a possibility that the known cases may not correctly represent all possible

cases, the hitherto invariable antecedent is not accounted the cause: but why? Because we are not sure that it *is* the invariable antecedent."

Furthermore let it be noted that "such cases of sequence as that of day and night not only do not contradict the doctrine which resolves causation into invariable sequence, but are necessarily implied in that doctrine. It is evident, that from a limited number of unconditional sequences, there will result a much greater number of conditional ones. Certain causes being given, that is, certain antecedents which are unconditionally followed by certain consequents, the mere coexistence of these causes will give rise to an unlimited number of additional uniformities. If two causes exist together, the effects of both will exist together; and if many causes coexist, these causes will give rise to new effects, accompanying or succeeding one another in some particular order, which order will be invariable while the causes continue to coexist, but no longer. The motion of the earth in a given orbit round the sun is a series of changes which follow one another as antecedents and consequents, and will continue to do so while the sun's attraction, and the force with which the earth tends to advance in a direct line through space, continue to coexist in the same quantities as at present. But vary either of these causes, and the unvarying succession of motions

would cease to take place. The series of the earth's motions, therefore, though a case of sequence invariable within the limits of human experience, is not a case of causation. It is not unconditional."[1] July does not cause August, though it invariably precedes it. For the sequence is conditioned by the coexistence of a given ratio between the solar gravitation and the earth's tangential momentum, with a given inclination of the earth's axis of rotation to the plane of its orbit. Vary either of these factors, which are the real causes of the seasons, and the hitherto invariable sequence between July and August will be altered.

Causation may therefore be defined as the unconditional invariable sequence of one event, or concurrence of events, upon another; and this is all that is given in the phenomenon. But metaphysics is not content with this conception of Cause. It prefers to regard causation as a kind of constraint by which the antecedent event obliges the consequent event to follow it. It postulates a hidden power, an *occulta vis*, in the cause, which operates as an invincible nexus between it and the effect. And it is by virtue of the exertion of this occult energy that cause, as formulated by metaphysics, is called Efficient Cause, in distinction from the only cause known to science, — the unconditional invariable an-

[1] Mill, *System of Logic*, 6th edition, vol. i. pp. 379–381.

tecedent, which may be termed Phenomenal Cause.

This explanation bears the distinctive marks of a metaphysical hypothesis, as enumerated in the preceding chapter. To the elements of sequence, invariableness and unconditionalness embraced in the scientific explanation, it superadds an *occulta vis*, an element which is not given in the phenomenon. No one pretends that we can actually cognize this *occulta vis*. The deepest analysis of our experience of the act of causation will yield no such element. Viewed under its subjective aspect, our knowledge of causation amounts simply to this, — that an experience of certain invariable sequences among phenomena has wrought in us a set of corresponding indissolubly coherent sequences among our states of consciousness; so that whenever the state of consciousness answering to the cause arises, the state of consciousness answering to the effect inevitably follows. But answering to the *occulta vis* we have no state of consciousness whatever.

Moreover the hypothesis of an *occulta vis*, like so many other metaphysical hypotheses, straightway lands us in an impossibility of thought. The proposition that the cause constrains the effect to follow, is an unthinkable proposition; since it requires us to conceive the action of matter upon matter, which, as we saw

in our first chapter, we can in nowise do. As was there pointed out, neither by the artifice of an intermolecular ether or of centres of attractive and repulsive force, nor by any other imaginable artifice, can we truly conceive one particle of matter acting upon another. What we do know is neither more nor less than what is given in consciousness, namely, that certain coexistences invariably precede or follow certain other coexistences. That matter as objectively existing may exert upon matter some constraining power which, as forever unknowable by us, may be called an *occulta vis*, I readily grant. Thought is not the measure of things, and it was therefore unphilosophical in Hume to deny the existence of any such unknown power. Things may exist, in heaven and on earth, which are neither dreamt of in our philosophy nor conceivable by our intelligence. Respecting the external reality we say nothing: we only affirm that no such *occulta vis* is given in the *phenomenon* of causation. Any hypothesis which postulates such an unknown element as a means of explaining the phenomenon is unverifiable, and, as such, science cannot admit it, nor can our Cosmic Philosophy admit it.

Nevertheless the belief that causation implies something more than mere invariability of sequence has been a persistent belief; and, as such, it is a fact which philosophy is required

to account for. Its explanation will not be difficult if we look to the source from which our notion of Power is derived. That source is the peculiar class of states of consciousness which accompany our voluntary actions. Part of our notion of Power consists in our consciousness of an ability to generate certain muscular sequences by means of an act of volition; and this amounts to no more than an expectation that the antecedent, volition, will be followed by the consequent, muscular movement. But the other part of our notion of Power is derived from the sense of *effort* which invariably accompanies our muscular actions. Every such action "has to contend against resistance, either that of an outward object or the mere friction and weight of the moving organ; every voluntary motion is consequently attended by the muscular sensation of fatigue. Effort, considered as an accompaniment of action upon the outward world, means nothing to us but those muscular sensations."[1] Here, then, is the shape of our primitive conception of Power; the consciousness of volition, accompanied by the conscious sensation of effort overcoming resistance, and the conscious expectation of a consequent muscular movement. Now, by the very relativity of our thinking, as will be shown more fully in the next

[1] Mill, *Examination of Hamilton's Philosophy*, vol. ii. p. 47.

chapter, we are compelled to formulate our conception of the Power which is manifested in the sequence of external phenomena, in terms of that Power which is alone directly known to us in consciousness. Hence, when we see one object moved by another, we conceive the impelling object as putting forth effort and overcoming the inertia of the impelled object. Though we no longer, like some children and all savages, regard this as a conscious effort, attended by volition, we still conceive it as an effort attended by resistance. And from this anthropomorphism of thought are derived two closely related, though apparently incompatible, metaphysical theories; the theory that matter, regarded as a cause, is endowed with an *occulta vis;* and the theory that matter, regarded as an effect, can move only under constraint from without.

Such is the origin of our conception of power in causation. Yet that the conception, as thus formulated, cannot correspond to the external reality, is a truth so obvious, at the present stage of our discussion, as hardly to need pointing out. It is enough to remark that since effort, as known to us, is only an affection of our consciousness, we cannot conceive the wind which overturns a tree as exerting effort, unless we mentally endow the wind with consciousness. The primitive man did not scruple at this; to

him the Wind was a superhuman person. We, who have outgrown fetishism, must take the other horn of the dilemma, and admit that whatever may be the force which the wind exerts, it cannot be the force which we know as effort. By this alternative difficulty we may recognize the fact that we have here again come face to face with the Unknowable. What the process of causation is in itself we cannot know. We can know it only as it is presented to our consciousness, as the unconditional invariable sequence of events.

Our account of causation would not be complete without some mention of an attempt which has again been made, of late years, to pass beyond the limits of intelligence, and cognize the external process in itself. This attempt, based upon an imperfect apprehension of the foregoing analysis, starts with the assertion that in our primitive consciousness of Power we have a true cognition of an Efficient Cause. According to this doctrine, the expectation that effort will overcome resistance and cause motion is a bit of *a priori* knowledge not given in experience. In our consciousness of effort we have direct knowledge of the causal nexus between the antecedent, volition, and the consequent, muscular contraction: volition is therefore known to us as an efficient cause of one kind of actions; and hence we must infer that

it is the sole efficient cause of all kinds of actions. Matter is absolutely inert: it is inconceivable that matter should act upon matter, but it is conceivable that mind should act upon matter; and therefore all phenomena which are not the direct results of human or animal will are the direct results of divine will. Such is the so-called Volitional Theory of Causation.

With the theistic implications of this doctrine I shall deal in a future chapter. At present we are concerned only with its psychological basis. And first we may observe that those who assert the action of mind upon matter to be conceivable appear to have forgotten the great difficulty under which metaphysics laboured during the seventeenth century. To Leibnitz and the Cartesians the action of mind upon matter was the thing inconceivable above all others, to account for which two theories were framed, among the most remarkable in the annals of metaphysics. These are, the doctrine of Occasional Causes, expounded by the Cartesian Malebranche, and the doctrine of Pre-established Harmony, expounded by Leibnitz, who is said to have plagiarized it from Spinoza. The Cartesians held it to be inconceivable, and therefore (on the subjective method) impossible, that thoughts or feelings in the mind should produce movements in the body; and consequently they regarded the concurrence of mental

and material facts "as mere Occasions on which the real agent, God, thought fit to exert his power as a Cause." So that, when you will to raise your arm, God interposes and lifts the arm for you; and he does this, not *as* a Being endowed with volition, but *as* an omnipotent Being, capable of working a miracle. To Leibnitz this seemed an unworthy view of divine action. He preferred to regard the entire series of volitions and the entire series of apparently consequent muscular motions as independent series, preëstablished in harmony with each other by the contrivance of the Deity from a time preceding the commencement of the world. So that, when you will to raise your arm, the arm moves, because God in the past eternity constructed the series of your volitions and the series of your motions like two clocks which accurately correspond to each other in their rates of ticking.

Such theories as these can, of course, be neither proved nor disproved. They are cited as interesting specimens of the manner in which human speculation attempts to grapple with realities which lie beyond its reach; but, as being unverifiable, our philosophy cannot recognize them as legitimate hypotheses. Coupling them with the Volitional Theory, the result is mutual destruction. In point of fact, we are no more directly cognizant of the action of mind upon

matter than we are directly cognizant of the action of matter upon matter. "Our will causes our bodily actions in the same sense (and in no other) in which cold causes ice, or a spark causes an explosion of gunpowder." The antecedent, volition, and the subsequent, muscular movement, are subjects of consciousness. But the relation of invariable sequence between them is known by experience, just as we know any other relation of sequence. As Mr. Mill observes, it cannot be admitted "that our consciousness of the volition contains in itself any *a priori* knowledge that the muscular motion will follow. If our nerves of motion were paralyzed, or our muscles stiff and inflexible, and had been so all our lives, there is no ground for supposing that we should ever (unless by information from other people) have known anything of volition as a physical power, or been conscious of any tendency in feelings of our mind to produce motions of our body, or of other bodies."[1] In such case we might still have had a sensation, like that which we now term the "consciousness of effort," but we should have known it merely as "a feeling of uneasiness, accompanying our feelings of desire." As Sir William Hamilton acutely observes, the Volitional Theory "is refuted by the consideration that between the overt act of

[1] *System of Logic*, 6th edition, vol. i. p. 391.

corporeal movement of which we are cognizant, and the internal act of mental determination of which we are also cognizant, there intervenes a numerous series of intermediate agencies of which we have no [direct] knowledge; and, consequently, that we can have no consciousness of any causal connection between the extreme links of this chain, the volition to move and the limb moving, as this hypothesis asserts. No one is immediately conscious, for example, of moving his arm through his volition. Previously to this ultimate movement, muscles, nerves, a multitude of solid and fluid parts, must be set in motion by the will, but of this motion, we know, from consciousness, absolutely nothing. A person struck with paralysis is conscious of no inability in his limb to fulfil the determinations of his will; and it is only after having willed, and finding that his limbs do not obey his volition, that he learns by this experience that the external movement does not follow the internal act. But as the paralytic learns after the volition that his limbs do not obey his mind, so it is only after volition that the man in health learns that his limbs do obey the mandates of his will." [1]

To this crushing refutation it may be added that even if volition were the efficient cause of

[1] *Lectures on Metaphysics*, Lecture 39; see also *Dissertations to Reid*, pp. 866, 867.

our own movements, as we admit it to be the phenomenal cause, it would not follow that it is the cause of anything else. As the passage just cited from Hamilton shows, the only direct effect which volition can be known to produce is nervo-muscular action, — a very exceptional, peculiarly animal phenomenon. And yet, "because this is the only cause of which we are conscious, — being the only one of which in the nature of the case we *can* be conscious, since it is the only one which exists within ourselves," — we are asked to assume, without further evidence, that throughout the infinitely multitudinous and heterogeneous phenomena of nature, no other kind of cause exists! A more amazing example of the audacity of the subjective method could hardly be found. In Mr. Mill's forcible language, "the supporters of the Volition Theory ask us to infer that volition causes everything, for no reason except that it causes one particular thing; although that one phenomenon, far from being a type of all natural phenomena, is eminently peculiar; its laws bearing scarcely any resemblance to those of any other phenomenon, whether of inorganic or of organic nature."

Thus ends in signal failure the last of the many attempts which have been made to invalidate the principle of the Relativity of Knowledge. Start from what point we may, we must

sooner or later reach the periphery of the circle which includes all that is knowable. Every attempt to overstep this periphery, and gain a sure foothold in the dark region beyond, must result in utter discomfiture. The inquiry into the origin and contents of our belief in Causation reveals, more clearly than ever, our impotence to deal with objective powers and existences. The attempt to detect the *occulta vis* or hidden energy in the act of causation is but the fruitless attempt to bind in the chains of some thinkable formula that universal Protean Power, of whose multitudinous effects we are cognizant in the sequence of phenomena, but which in its secret nature must ever mockingly elude our grasp.

CHAPTER VII

ANTHROPOMORPHISM AND COSMISM[1]

THE body of philosophic truth contained in the six foregoing chapters can in nowise claim Auguste Comte as its originator. The doctrine of the relativity of knowledge has, as we have seen, been accepted more or less unreservedly by most of the thinkers of the last two centuries; and has, indeed, never been wholly lost sight of in philosophic speculation since the time of Protagoras. Nevertheless the doctrine has been variously interpreted by different philosophers; and we have seen that the Positivist interpretation of it, propounded by Littré and Mill, is essentially different from the interpretation given by Mr. Spencer, and here adopted. Again, the doctrine that all knowledge is the product of the intercourse between the sentient organism and its environment is a doctrine which has been held by more than half the philosophic world since the time of Locke. The doctrine that causation, as cognizable by us, is merely uncondi-

[1] [See Introduction, § 13.]

tional invariable sequence was the doctrine of Hume, Brown, and James Mill; and for its further defence and elucidation we are indebted, not to Comte, but to John Stuart Mill. The test of truth, as stated in the third chapter of this work, was just as much or just as little postulated by Comte as by preceding thinkers: it was first definitely propounded by Mr. Spencer, and its validity has been repeatedly challenged by Mr. Mill, — the most eminent psychologist who has yet declared his assent to all the fundamental doctrines of positivism. Nor was Comte the first to insist upon the exclusive use of the objective method in all departments of research; for Bacon, as we have seen, had enunciated this precept with equal vigour and impressiveness, though with less commanding scientific authority. It is to be regretted, moreover, that we cannot even accredit Comte with unflinching loyalty to this principle. Not only have we seen him openly disavowing it, but we have been called upon to contemplate, in his "Subjective Synthesis," the most lamentable instance afforded by history of the wonderful extent of aberration possible to the *intellectus sibi permissus*.

All the above truths, then, so far as they were understood by Comte, were accepted by him as he found them. He did not originate them, nor did he place them, from the psychological point of view, upon any surer footing than they

had occupied before. That psychological analysis, in the light of which they have been here exhibited, and by which alone they can be securely established, Comte unreservedly and disdainfully repudiated. Asserting as he did that all direct observation and comparison of states of consciousness is vain and nugatory, Comte could only accept the doctrine of the relativity of knowledge and its corollaries as empirical doctrines. We shall frequently have occasion to remark upon the vulnerable condition in which the Positive Philosophy is left, owing to this disregard of psychology. Here indeed was Comte's weak point, as it is Mr. Spencer's strong point. As an observer and interpreter of states of consciousness Comte was below mediocrity — hardly fit to be ranked with Cousin or Dugald Stewart; while in power of psychological analysis, Herbert Spencer has been surpassed by no thinker that ever lived, and has been rivalled only by Aristotle, Berkeley, and Kant. And it is accordingly not Comte, but Spencer, who has wrought the truths above enumerated into an organized body of doctrine resting upon an indestructible basis in consciousness.

Since, then, the foundations of the scientific philosophy here expounded were laid down by Bacon, Locke, Hume, and Kant, and since that philosophy has first been presented as a coher-

ent body of universal truth by Herbert Spencer, it is clear that there exists a very considerable body of philosophic doctrine, which is not metaphysical or theological, and which, nevertheless, does not owe its existence to Comte. It is clear that we cannot concede to Comte such a monopoly of the scientific method of philosophizing that all scientific philosophy must be designated as Positivism. It does not yet appear, from the foregoing summary, that scientific philosophy owes anything whatever to Comte. Yet if we were to rest in any such conclusion as this, we should be seriously in error. It is not to be gainsaid that the speculations of Comte have played a most conspicuous and important part in directing the course of philosophic inquiry in the nineteenth century. A thinker of Comte's calibre does not live and write to no purpose. And while it will appear, in the course of the following discussion, that the peculiar theories of Comte are such as philosophy cannot possibly adopt, it will also appear that these theories, besides containing a germ of truth, are instructive even in their erroneousness. Even while demonstrating that we cannot, without grievously retrograding, consider ourselves followers of Comte or advocates of the Positive Philosophy, we must at the same time freely admit our indebtedness to Comte for sundry suggestions of the highest

importance. We must not refuse to Comte the meed of acknowledgment which we should have no hesitation in giving to Kant, or Spinoza, or even to Hegel, if occasion were to be offered. Least of all can we acquiesce in Professor Huxley's opinion that there is nothing whatever of any value in the philosophy of Comte which is not also to be found in the philosophy of Hume. The point is one of such importance in itself, and is so narrowly implicated with much of the following discussion, that I must devote a few moments to the elucidation of it, before entering upon the special subject of this chapter.

In spite of his feebleness as a psychologist, and his numerous unphilosophic idiosyncrasies of temperament, Comte was possessed of one mental endowment, most brilliant at any time, and most useful to a thinker living in the first half of the nineteenth century. It is by virtue of this mental endowment that Comte is chiefly distinguished from the thinkers of the eighteenth century; and it was by dint of this that he succeeded in making himself — more conspicuously than any of those thinkers — the herald, though not the inaugurator, of modern philosophy. I refer to that historic sense, — that almost unique power of investing himself, so to speak, with the mental habits of bygone generations, and of entering into the very spirit which dictated past events and obsolete modes

of thinking, —which makes the fifth volume of Comte's great work one of the most valuable and suggestive treatises ever written concerning the concrete phenomena of history. Many thinkers before Comte had conceived the idea of a philosophy of history: such were Machiavelli, Vico, Montesquieu, Voltaire, Turgot, and Condorcet; but none of these great men possessed in so high a degree the historic sense necessary for the realization of such a project. It is the influence of this historic sense of Comte, more or less consciously felt, which lends a great part of their value to many of the most striking historical treatises of our time, — to the colossal works of Grote and Mommsen, as well as to the monographs of Mr. Bryce, Dr. Bridges, M. Taine, M. Renan, and the author of "Ecce Homo." It was the lack of such a historic sense, and the adherence to the old disposition to examine past events through the refracting medium of recently acquired habits of thought, which constituted Mr. Buckle's chief source of failure as a philosophic historian.[1]

[1] [Compare Fiske's youthful essay on Buckle in *Darwinism and Other Essays*. It is doubtful whether Fiske would have rated Comte's influence as the "herald" of historic thinking, the unique possessor, in his time, of the historic sense, if he had more fully considered the relation of German Romanticism, and of Hegel, to the early history of this tendency.]

Now I say it was by dint of this rare historic sense that Comte succeeded in taking a step which was not only an important advance, but in many respects a veritable revolution in philosophy. It was Comte who first brought into prominence the idea of a philosophy of history which should also be the history of philosophy. The thinkers of the eighteenth century, with Hume at their head, had studied systems of philosophy, much as anatomists before Cuvier had studied animal and vegetal organisms, as detached independent existences, without regard to their past or future. But to Comte is due the grand and luminous conception of a historic development of thought, from the earliest to the latest ages of human speculative activity.[1] Just as Cuvier proclaimed it irrational to study existing organisms without constant reference to extinct organisms, Comte pronounced it irrational to coördinate existing opinions, save in their relations to past opinions. He grasped, as it had not before been grasped, the truth that each body of doctrines has its root in some ancestral body of doctrines; that throughout the whole of man's speculative

[1] [This debt to Comte, as to the *initiator* of the conception of the "historic development of thought," is precisely what one may doubt when one recalls Hegel's *History of Philosophy*. And Fiske would, probably, upon consideration, have modified this passage.]

career there has been going on an Evolution of Philosophy, of which the thorough recognition of the relativity of knowledge must be the inevitable outcome. Herein lay the originality of Comte; an originality of which it is hardly correct to say that Professor Huxley disparages it, since he passes over it in silence and does not appear to have discerned it. Yet as to the originality of this conception, there can be no question whatever. Neither Hume nor any other thinker of the eighteenth century had compassed it. Lessing, indeed, — a man far in advance of his age, — had, in his work entitled "The Education of the Human Race," sketched a theory of the evolution of speculative ideas; but it was only imperfectly, if at all, that he comprehended the nature and direction of that evolution. He may be regarded as a forerunner, but not as an anticipator, of Comte.

As to the importance of Comte's conception there can be no more question than as to its originality. It constituted a revolution in philosophy as thorough and wide-reaching as the revolution which Cuvier, by fusing together the studies of comparative anatomy and palæontology, brought about in biology. In working out the details of his conception, Comte, like Cuvier, fell into many grave errors: but the great thing was to have framed the conception.

As Mr. Spencer wisely and wittily observes, "Inquiring into the pedigree of an idea is not a bad means of estimating its value." Comte's conception of the evolution of philosophy obliges us henceforth to test ideas by their pedigree, — to trace their origin in the employment of the subjective or of the objective method. Surely it was no small achievement to bring together the truths which Locke and Hume and others had laboriously detected, and to exhibit them as the necessary outcome of twenty-five centuries of speculative activity. For by this proceeding the truths in question were at least historically justified. And although the psychological justification of them had to be left for Mr. Spencer, although it can be amply proved that Comte, in his ignorance of psychology, seriously misinterpreted the import of these truths, that is no reason why we should hesitate to acknowledge the greatness of his achievement. The doctrine of which Cuvier was the most eminent upholder — the doctrine of fixity of species — is one which modern biology rejects, just as modern philosophy rejects the doctrines especially characteristic of Comte's system. Nevertheless, as we admit of Cuvier, — that his innovation, in studying all existing organisms with reference to past organisms, amounted to a revolution in the attitude of biology, — so we must admit of Comte, that his

innovation, in studying all phases of thought with reference to preceding phases of thought, amounted to a revolution in the attitude of philosophy. Yet the latter admission no more makes us followers of Comte than the former admission makes us followers of Cuvier.

The significance of this illustration will become still more apparent as we proceed to examine the attempt of Comte to describe the course of philosophic evolution as actually shown in history. According to Comte there are three modes of philosophizing — the Theological, the Metaphysical, and the Positive. The first two modes are characterized by the attempt to formulate the unknowable Cause or causes of phenomena; but Positivism, recognizing the futility of all such attempts, ignores the unknowable Cause or causes of phenomena. Positivism limits itself to ascertaining uniformities of coexistence and sequence among phenomena. Metaphysics and Theology superadd investigations concerning the nature of the hidden efficient cause of the phenomena; but Metaphysics regards this cause as a mere abstract entity, while Theology regards it as endowed with volition and intelligence. There are three successive stages of theology: Fetishism, in which phenomena, being not yet generalized, are regarded each as endowed with a volition of its own; Polytheism, in which

Auguste Comte

generalized groups of phenomena are regarded each as under the control of a presiding deity endowed with volition; and Monotheism, which arises when men have gained the conception of a Universe, and have generalized the causes of phenomena until they have arrived at the notion of a single First Cause. According to Comte, philosophy began in fetishism; as science progressively arranged phenomena in groups of wider and wider generality, philosophy passed through polytheism into monotheism; and as with its increasing generality, the primitive anthropomorphic conception of cause faded away, becoming replaced by the conception of an unknowable Cause manifested in phenomena, philosophy became metaphysical: finally, when the unknowable Cause is wholly ignored, and no account is taken of anything beyond the immediate content of observed facts, philosophy becomes positive. For while Comte did not follow Hume and Berkeley to the extent of explicitly or implicitly denying the independent existence of a Power manifested in phenomena; while he would, if consistent with his own principles, have regarded such a denial as an overstepping of the limits within which positive speculation should be confined; it is none the less true that he ignored the existence of any such Power as completely as if he had held the extreme idealist doctrine which pro-

nounces it a mere figment of the imagination. So utterly foreign to Positivism is Mr. Spencer's doctrine of the Unknowable, that M. Littré, who is of all living men the most thoroughly and consistently a Positivist, condemns it as a baseless metaphysical speculation.

Such is the celebrated "Law of the Three Stages," which is regarded by Positivists as one of the greatest achievements of the human mind, and which impartial criticism must regard as an achievement of sufficient importance to have wrought a complete revolution in the attitude of modern philosophy. That it also contains a large amount of truth, as a concise generalization of historical facts, can be denied by no competent student of history. But, while freely conceding all this, it will appear, on a closer examination, that the doctrine in question is rather a foreshadowing of the true statement than the true statement itself; and that in one all-important particular it is utterly inadmissible. Let us begin by inquiring how far the progress of human thought, with reference to the unknown Cause or causes of phenomena, can be regarded as divisible into stages, and in what sense Comte really intended to assert that there are three stages. It is important that both these points should be determined, in order that our conception of the character of the speculative development may be rendered sufficiently precise, and

in order to ascertain how far Comte understood that character.

Upon this point, as upon many others, Comte has left on record assertions which, if literally interpreted, simply cancel each other. At the beginning of the "Philosophie Positive," he tells us that "the mind employs successively in each of its researches three methods of philosophizing, of which the character is essentially different and even radically opposed — first the theological method, then the metaphysical, lastly the positive. The theological system arrives at the highest perfection of which it is susceptible, when it has substituted the providential action of a single Being for the capricious play of the innumerable independent deities which were primitively imagined. Likewise the perfection of the metaphysical system consists in conceiving, instead of many particular entities, one grand entity, Nature, as the source of all phenomena. Finally the perfection of the positive system would be to represent all observable phenomena as particular cases of a single general fact." And hence, says Comte, "these three general systems of conceptions concerning the ensemble of phenomena mutually exclude each other." Now Comte elsewhere maintains that, so far from mutually excluding each other, the three methods of philosophizing have coexisted with each other since the dawn of speculation;

and that, in particular, the metaphysical method is merely a modification of the theological method.

The truth is, however, that the so-called "Law of the Three Stages" was an empirical generalization from the facts of history, and that, with his customary indifference to psychological interpretations, Comte did not concern himself with the character of the mental processes involved in the speculative progression which he sought to formulate. What Comte really saw was, that men, when they first began to speculate upon the phenomena of nature, imagined behind every phenomenon, save possibly a few of the most familiar ones, an impelling will, like the human will; that, as the anthropomorphic character of this conception slowly faded away, it left the conception of a hidden Power or powers, to ascertain the nature of which was long supposed to be the legitimate business of philosophy; and that, lastly, with the further progress of thought, philosophy must give up the attempt to ascertain the nature of this hidden Power or powers, and concern itself solely with coexistences and sequences among phenomena. All this is true so far as it goes, its confirmation being written on every page of history. Nevertheless all this is but one side of the truth. The truth has another side, which Comte never saw, and which no writer of the Positivist school has

ever given any evidence of discerning. What Comte did not see was, that from first to last there is no change in the nature of the psychological process; and that, even at the last, the hidden Power underlying and sustaining the world of phenomena can no more be ignored than at the beginning. Let us examine both these points, and note well their significance.

In the first place there is no change in the nature of the mental processes concerned in the development. From first to last, whether we give a theological, a metaphysical, or a scientific explanation of any phenomenon, we are interpreting it in terms of consciousness. To recur to our old illustration — on seeing a tree blown down by the wind, the primitive man concludes that the wind possesses intelligence and exerts volition; he calls it Hermes, or Boreas, or Orpheus, and erects to it a temple, wherein by prayer and sacrifice he may avert its displeasure. In a later age the wind is no longer regarded as endowed with conscious volition; but it is still regarded as exerting effort, and overcoming the forces which tend to keep the tree in its place. Obviously this is at bottom the same conception as its predecessor, save that it is less crudely anthropomorphic. Now in the scientific explanation, we omit also the conception of a specific *nisus* or effort, and regard the falling of the tree

as an event invariably consequent upon the blowing of the wind with a given momentum. Here, perhaps, it may seem that we quite get rid of every subjective or anthropomorphic element. But this is a mistake. The use of the word "momentum" shows how we are compelled to conceive the event as a manifestation of force. We may abolish the figment of a specific *occulta vis*; but strive as we will, we cannot mentally represent the event otherwise than as a differential result of the excess of one quantum of force over another quantum of force. And what do we mean by force? Our conception of force is nothing but a generalized abstraction from our sensations of muscular resistance. That such a conception is merely symbolic, that it does not truly represent the real force objectively existing, I have already shown. Nevertheless from the relativity of our thought, such is the only conception which we can frame. Therefore, I repeat, from first to last, whether we give a theological, a metaphysical, or a scientific explanation of any phenomenon, we alike interpret it in terms of consciousness. Whether we frame the crude conception of an arbitrary volition, or the refined conception of a uniformly conditioned force, we must equally admit that our subjective feelings are the only materials with which the conception can be framed. The consciousness of force remains dominant from first to last, and

can be abolished only by abolishing consciousness itself.

But now, in the second place, this final scientific conception of a uniformly conditioned force cannot even be framed save by postulating an unconditioned Power existing independently of consciousness, to which no limit is conceivable in time or space, and of which all phenomena, as known to us, are the manifestations. It was demonstrated above, in the fourth chapter, that without postulating such an Absolute Existence, we can frame no theory whatever, either of external or of internal phenomena, even our proof of the relativity of knowledge immediately becoming nonsense in such case. It was shown that the existence of such a Power independent of us is an element involved in our consciousness of our own existence — is, in short, the "obverse of our self-consciousness." Thus the three stages disappear entirely, and the three terminal conceptions which are alleged as distinctively characteristic of the stages are seen to be identical. The God of the monotheist, the Nature of the metaphysician, and the Absolute Being which science is compelled to postulate, differ only as symbols differ which stand for the same eternal fact. If there be any confusion still left regarding this point, it will be dispelled by the following citation from Mr. Spencer: —

"The progress of our conceptions, and of

each branch of knowledge, is from beginning to end intrinsically alike. There are not three methods of philosophizing radically opposed; but one method of philosophizing which remains, in essence, the same. At first, and to the last, the conceived causal agencies of phenomena have a degree of generality corresponding to the width of the generalizations which experiences have determined; and they change just as gradually as experiences accumulate. The integration of causal agencies, originally thought of as multitudinous and local, but finally believed to be one and universal, is a process which involves the passing through all intermediate steps between these extremes; and any appearance of stages can be but superficial. Supposed concrete and individual causal agencies coalesce in the mind as fast as groups of phenomena are assimilated, or seen to be similarly caused. Along with their coalescence comes a greater extension of their individualities, and a concomitant loss of distinctness in their individualities. Gradually, by continuance of such coalescences, causal agencies become, in thought, diffused and indefinite. And eventually, without any change in the nature of the process, there is reached the consciousness of a universal causal agency, which cannot be conceived.

"As the progress of thought is one, so is the end one. There are not three possible terminal

conceptions; but only a single terminal conception. When the theological idea of the providential action of one Being is developed to its ultimate form, by the absorption of all independent secondary agencies, it becomes the conception of a Being immanent in all phenomena; and the reduction of it to this state implies the fading-away, in thought, of all those anthropomorphic attributes by which the aboriginal idea was distinguished. The alleged last term of the metaphysical system — the conception of a single great general entity, *Nature*, as the source of all phenomena — is a conception identical with the previous one: the consciousness of a single source which, in coming to be regarded as universal, ceases to be regarded as conceivable, differs in nothing but name from the consciousness of one Being manifested in all phenomena. And similarly, that which is described as the ideal state of science — the power to represent all observable phenomena as particular cases of a single general fact — implies the postulating of some ultimate Existence of which this single fact is alleged; and the postulating of this ultimate Existence involves a state of consciousness indistinguishable from the other two."[1]

This completely unanswerable statement exhibits Mr. Spencer's unrivalled power of psy-

[1] Spencer, *Recent Discussions*, p. 124.

chologic analysis in striking contrast to the weakness under which Comte laboured from his neglect of such analysis. And it shows that Comte's conception of the order of philosophic evolution was entirely inadequate, and in the most important point entirely erroneous. It shows that the fundamental characteristic of Positive Philosophy, as asserted by Comte and as admitted by his followers, is the non-recognition of the absolute and infinite Power which is manifested in phenomena. Or, to use Mr. Spencer's words, the essential principle of Comte's philosophy is "an avowed ignoring of Cause altogether. For if it is not, *what becomes of his alleged distinction between the perfection of the positive system and the perfection of the metaphysical system?*" According to Comte's own definition, the terminal conception of the metaphysical system is that of a single great Entity or Existence as the source of all phenomena; and since we have here shown that this very conception is the final conception in which science also must rest, the only possible step in advance which can be taken by Positivism is the elimination of this conception altogether. Professor Huxley is thoroughly justified, therefore, in describing the name Positivism as implying a system of thought which recognizes nothing beyond the observed contents of phenomena: this description would

be acknowledged as strictly accurate by M. Littré, and indeed expresses neither more nor less than that which Comte sought to express when he defined the perfection of the positive system to be the contemplation of all observable phenomena as particular cases of a single general fact, and omitted to add that this single fact must be alleged of some Existence of which all observable phenomena are manifestations. The "positive" stage of philosophizing is, therefore, something which never did exist and which never will exist. The "positive" method of philosophizing is simply an impossibility. The fundamental principle upon which the Positive Philosophy rests is the refusal to affirm that of which the affirmation is the fundamental principle of all knowledge, of all science, and of that Cosmic Philosophy which is the summing up of science.

Thus, since Comte's positive stage must be set aside altogether, and since his metaphysical stage and his theological stage alike end in positing Absolute Existence as the source of phenomenal existence, this being also the fundamental postulate made by science, the three stages vanish altogether. As we saw, in our second chapter, that from lowest to highest the process of knowing is essentially one and the same, we now see that from beginning to end the progress of that kind of knowledge which

we call philosophy is one and the same. There are not three successive or superposed processes. There is one continuous process, which (if I may be allowed to invent a rather formidable word in imitation of Coleridge) is best described as a continuous process of *deanthropomorphization*, or the stripping off of the anthropomorphic attributes with which primeval philosophy clothed the unknown Power which is manifested in phenomena. Or, to be still more accurate, we may describe the process of philosophic evolution as a continuous integration, in thought, of causal agencies; of which process the gradual deanthropomorphization of these agencies is the necessary symptom and result, — until, as the end of the process, when all causal agencies have become integrated in the conception of a single Causal Agency, the tendency to ascribe anthropomorphic attributes to this Agency has reached its minimum.

We may now consider this process somewhat more in detail, as it has been concretely exemplified in history. And in doing this it will become apparent that, in spite of its vagueness, its inadequacy, and the fundamental error which vitiates it, the Comtean conception undeniably contained an adumbration of the truth. It recognized the process of deanthropomorphization as historically displayed, though it did not interpret it psychologically. And in several of

its minor statements, we can have no hesitation in admitting Comte's generalization to be thoroughly valid. It is, for example, a historical fact that monotheism was preceded by polytheism, and that polytheism was preceded by fetishism; as indeed it was a psychological necessity that it should be so. Nor need we have any scruples about grouping these various forms of anthropomorphism under the general title of theology; or about employing the term "metaphysics" to designate that imperfect phase of science in which the necessity for verification is not yet recognized, and in which the limits to philosophic inquiry are as yet undetermined. It was in this sense that the term was defined in our fifth chapter, and it was in this sense that Newton used it in his famous objurgation, "O Physics, beware of Metaphysics!" The term, as thus defined, as well as the term "theology," belongs to the general vocabulary of modern philosophy; and in using the two, we in no wise tacitly commit ourselves to the untenable hypothesis of the "Three Stages," while at the same time we are thereby enabled the better to sum up the facts which seemed to Comte to justify his generalization.

Premising this, we may proceed to gather our illustrations of the deanthropomorphizing process. And first let us note that theology, metaphysics, and science all have their common

starting-point in mythology. It is worthy of remark that at about the same time when Comte first announced his theory of the primeval origin of philosophy in fetishism, the greatest of modern scholars, Jacob Grimm, was beginning those profound inductive researches which ended in demonstrating the fetishistic origin of myths. The myths of antiquity and of modern savagery constitute philosophy in its most primitive form, and embody whatever wisdom fetishism has to offer as the result of its meditations upon the life of man and the life of nature. Primitive men, like modern savages, had no systematic theology; they possessed no symbolic conception of God as an infinite unity — they were astray amid an endless multitude of unexplained and apparently unconnected phenomena, and could therefore form no generalized or abstract notions of divinity. But they were "oppressed with a *sensus numinis*, a feeling that invisible, powerful agencies were at work around them, who, as they willed, could help or hurt them." They naturally took it for granted that all kinds of activity must resemble the one kind with which they were directly acquainted — their own volition. Seeing activity, life and motion everywhere, it was impossible to avoid the inference that intelligent volition must be everywhere. Even after centuries of philosophizing, we can hardly refrain from imagining an anthropomor-

phic effort, or *nisus*, as constituting the necessary link between cause and effect. Yet in our minds, in so far at least as our overt utterances are concerned, fetishism has been very nearly destroyed by the long contemplation of the unvarying uniformity of the processes of nature. In the mind of the primitive man there were no such checks. The crude inference had its own way unopposed; and every action was believed to have its volition behind it. There was a volition for sunrise, and another for sunset; and for the flood of rain and the lightning there was a mighty conflict of volitions, a genuine battle of *manitous*, or superior beings, whenever — in mythic phrase — the great black shaggy ram, lifting audaciously his moist fleece against the sky, was slain and annihilated by the golden, poison-tipped, unerring shafts of Bellerophon.[1]

[1] Thus, as I have observed in another work, "a myth is an explanation, by the uncivilized mind, of some natural phenomenon; not an allegory, not an esoteric symbol, — for the ingenuity is wasted which strives to detect in myths the remnants of a refined primeval science, — but an explanation. Primitive men had no profound science to perpetuate by means of allegory, nor were they such sorry pedants as to talk in riddles when plain language would serve their purpose. Their minds, we may be sure, worked like our own, and when they spoke of the far-darting sun-god, they meant just what they said, save that where we propound a scientific theorem, they constructed a myth. A thing is said to be explained when it is classified with other things with which we are already

Thus we may safely assert, with Comte, that the earliest attitude assumed by the mind in interpreting nature was a fetishistic attitude. That chaos which the oldest traditions and the latest science alike recognize as the primordial state of the material universe must also have characterized the infancy of the human intellect. Until phenomena had been partially generalized, they could only have been considered the manifestations of arbitrary powers, not only unallied, but even in conflict with each other. And psychology tells us that the fetishistic hypothesis was the only possible one, — that these powers must have been supposed to effect their purposes by means of volition. As we have seen, all interpretation of phenomena is an interpretation in terms of likeness and unlikeness. We know an object only as this thing or that thing, only as classifiable with this or that other object; and the extent of our knowledge may be measured by the accuracy and exhaustiveness of our classi-

acquainted. That is the only kind of explanation of which the highest science is capable. We explain the origin, progress, and ending of a thunder-storm, when we classify the phenomena presented by it along with other more familiar phenomena of vaporization and condensation. But the primitive man explained the same thing to his own satisfaction when he had classified it along with the well-known phenomena of human volition by constructing a theory of a great black dragon pierced by the unerring arrows of a heavenly archer." *Myths and Myth-Makers*, p. 28.

fication. To adopt a familiar expression of Plato, we are ever carrying on a process of dichotomy; or, in the more precise language of modern psychology, we are continually segregating similar objects and similar relations of objects into groups, apart from those which they do not resemble. If we fail to detect the resemblances which really exist, or if we have imagined resemblances which do not exist, our interpretation is so far inaccurate and untrustworthy, but not therefore necessarily useless. Some theory is needful as a basis for further observation. Wrong classification is the indispensable prelude to right classification. The mind cannot go alone till it has for a while groped and stumbled. Nature, the hoary Sphinx, sternly propounds a riddle; and many a luckless guesser gets devoured before an Oidipous arrives with the true solution.

In the primitive hypothesis, therefore, the forces of nature must have been likened to human volition, because there was nothing else with which to compare them. Man felt within himself a source of power, and did not yet surmise that power could have any other source than one like that which he knew. Seeing activity everywhere manifested, and knowing no activity but will, he identified the one with the other; and thus the same mighty power of imagination which now, restrained and guided by

scientific methods, leads us to discoveries and inventions, then wildly ran riot in mythologic fictions whereby to explain the phenomena of nature.[1]

The advance from this primeval fetishism through polytheism to monotheism was determined by the gradual attainment of physical knowledge, or, in other words, by the detection of certain uniformities in the processes of nature. The discovery of natural laws is the segregation of phenomena into groups according to their relations of likeness and unlikeness, attended by the disclosure of community of causation for the phenomena constituting each group. After this process has continued for a time, it is perceived that there are different modes of causation. Phenomena, in the production of which the human will is not implicated, are seen to differ from those in which it is concerned, by exhibiting a more conspicuous and readily detected regularity of sequence. Consequently, in considering them, the conception of arbitrary or capricious will is gradually excluded, and is replaced by the conception of a uniform force, whose actions may be foreseen, and whose effects, if harmful, may be avoided. This having occurred in the case of the more

[1] [See Introduction, § 44, for remarks concerning the relation of this view of primitive belief to Spencer's views, and to recent discussion.]

familiar phenomena, the same result eventually follows in the case of those which are more remote. The ultimate phase of this process, characterized by the complete extrusion of volitional agencies and the universal substitution of the conception of invariable sequence, becomes possible only after an immense development of physical science. Volitional agencies, therefore, were not at once extruded, but were only generalized more and more, and gradually separated further and further from the phenomena which they were supposed to produce. A great step was taken in philosophy when the Titan dynasty was dethroned, and the celestial and terrestrial provinces of phenomena partitioned between Zeus and Poseidon. A still greater step was taken when God, considered as an arbitrary volitional agency, was entirely separated from the universe of tolerably uniform sequences, interposing with his will only on rare occasions. This is the cruder form of monotheism, and in it the metaphysical mode of thought is very conspicuous. In place of the innumerable volitional agents of the older theosophy, we have now innumerable *occultæ vires*, inherent virtues, vital principles, essential properties, and abstract entities; at the bottom of all, the universal occult entity Nature, which is regarded as producing phenomena with considerable uniformity, save when the Volition behind sees fit to inter-

pose and temporarily modify the natural order. Finally, when physical generalization has advanced so far as to include all, or nearly all, orders of phenomena, the theory of miraculous interposition vanishes, or remains only as a lifeless formula, verbally assented to, but not really believed in, while the presiding Volition is thrust back to the beginning of things, being retained only as a convenient and apparently necessary postulate by which to account for the origin of the universe and the harmonious cooperation of phenomena. This most refined form of theology will be thoroughly discussed in a future chapter. We have now only to note that further progress in deanthropomorphization involves the extrusion of the notion of a volitional Cause altogether, and leaves us with the conception of a Cause manifested throughout the entire world of phenomena, which is an indestructible element of consciousness, and which, equally with the anthropomorphic conceptions which have preceded it, is the proper object of religious feeling, but concerning the nature of which — in itself, and apart from its phenomenal manifestations — the human mind can frame no verifiable hypothesis.

We have seen that this terminal phase of the deanthropomorphizing process is radically distinct from Positivism, in which the Cause mani-

fested in the world of phenomena is entirely ignored. It need hardly be added that it is equally distinct from Atheism and Pantheism, in which no place is left for a Cause distinct from phenomena themselves. How shall we characterize this terminal phase of the long process of philosophic development which we have just passed in rapid survey? An answer will be forthcoming if we pause to consider the common characteristics of the theological phases of thought which, in this terminal phase, are assumed to be outgrown and superseded. Let us premise that the word "Cosmos" is, by virtue of its etymology and of strict scientific usage, the antithetical correlative to the word "Chaos." It *denotes* the entire phenomenal universe; it *connotes* the orderly uniformity of nature, and the negation of miracle or extraneous disturbance of any kind. Now it is a common characteristic of the theologico-metaphysical phases of philosophy above passed in review, that while they have sought to explain the universe of phenomena, their explanations have been not purely cosmic, but to a greater or less extent anthropomorphic. Instead of restricting themselves to the interpretation of the uniformities of coexistence and sequence discovered by science, they have had recourse to unverifiable hypotheses concerning supernatural beings and occult entities, and have thus

complicated the conception of the Cosmos with that of anthropomorphic agencies that are extra-cosmic. We have seen that the process of scientific generalization, which underlies the evolution of philosophy from epoch to epoch, is characterized not by the elimination of these agencies, but by their integration into a single Agency, from which the anthropomorphic attributes are stripped, and which is regarded as revealed in and through the Cosmos. Manifestly, then, while it is impossible to define this process as a development from Anthropomorphism to Positivism, it is on the other hand strictly accurate and entirely appropriate to define it as a development from Anthropomorphism to Cosmism. I do not know where we could find, for our purpose, a pair of terms more happily contrasted. For besides the connotations just described, there is also involved in this terminology the recognition of the fact that, at the outset, men interpreted the Cosmos in terms of human feeling and volition; while, on the other hand, as the newest result of scientific generalization we now find them beginning to interpret human feeling and volition in terms obtained from the objective study of the Cosmos.

Let it be noted also, that, along with this group of happy contrasts, there is an equally happy lack of antagonism between our pair of

terms. For while, on the one hand, all past philosophies have been Cosmic, in so far as the interpretation of the universe has been their aim, on the other hand, it will never be possible to get entirely rid of every trace of Anthropomorphism. For, as was proved in the fourth chapter, there is anthropomorphism even in speaking of the unknown Cause as *single;* and, as has been proved in the present chapter, there is anthropomorphism even in speaking of the unknown Cause as a *Power* manifested in phenomena. Yet we must either use such language or remain silent; we must either symbolize the unknown Cause or ignore it, — and as the latter alternative is impossible, we must accept the former.

Thus is exhibited in strong relief the peculiar excellence, both of our theory of deanthropomorphization and of the terms in which it is stated. For whereas the Atheistic Philosophy current in the eighteenth century sought to break entirely with the past, scornfully setting aside its time-honoured beliefs as so much quackery and delusion; and whereas the Positive Philosophy, in spite of its sympathetic attitude toward the past, consequent upon its announcing itself as the terminal phase of a long development, nevertheless was obliged tacitly to break with the past, in so far as it ignored that which in earlier stages had always been

taken for granted; on the other hand, the Cosmic Philosophy, in announcing itself as the most recent phase of a long development, recognizes no break anywhere in the course of that development. While Atheism scoffed at religion, and denied that the religious sentiment needed satisfaction; while Positivism, leaving no place in its scheme for religion to occupy, was compelled by an afterthought to proclaim that the religious sentiment finds its legitimate satisfaction in the service of an idealized Humanity; Cosmism, on the contrary, assigns to religion the same place which it has always occupied, and affirms that the religious sentiment must find satisfaction in the future, as in the past, in the recognition of a Power which is beyond Humanity, and upon which Humanity depends. The existence of God — denied by Atheism and ignored by Positivism — is the fundamental postulate upon which Cosmism bases its synthesis of scientific truths. The infinite and absolute Power, which Anthropomorphism has in countless ways sought to define and limit by metaphysical formulas, thereby rendering it finite and relative, is the Power which Cosmism refrains from defining and limiting by metaphysical formulas, thereby acknowledging — so far as the exigencies of human speaking and thinking will allow — that it is infinite and absolute. Thus in the progress from

Anthropomorphism to Cosmism the religious attitude remains unchanged from the beginning to the end. And thus the apparent antagonism between Science and Religion, which is the abiding terror of timid or superficial minds, and which the Positive Philosophy did comparatively little to remove, is in the Cosmic Philosophy utterly and forever swept away.

The further elucidation of these views must be postponed until we come to treat in detail of the relations of science to theism and religion. With this preliminary indication of a theory to be hereafter more fully unfolded, the present chapter might be brought to a close, were it not that our conclusions have been elicited through a criticism of the theory of Comte, and that, at the beginning of our discussion, certain expectations were held out which the close of the discussion may seem to have belied. Conformity to the requirements of sound criticism demands that something more should be said upon this point.

We started in the belief that we were about to trace the outlines of some grand achievement whereby the claims of Comte to philosophic originality might be vindicated. We expressed entire dissent from Professor Huxley's opinion that there is nothing of any value in the Positive Philosophy save that which it has borrowed

from Hume. And we went so far as to assert that Comte's generalization of the historic order of speculative development inaugurated nothing less than a veritable revolution in the attitude of philosophy. Yet we have ended by regarding that generalization as wholly erroneous in one fundamental point, and as more or less inadequate in nearly all its points. And more than this, we have noted that the very weakness of Comte's position consisted in his inability to advance one step in psychology beyond the point reached by Hume.

In spite of all this, however, the essential importance of the step taken by Comte is in no way invalidated. It is one thing to show that a doctrine is not wholly true; it is quite another thing to show that it contains no truth whatever. When Copernicus, for example, asserted that the planets revolve about the sun in circular orbits, he made a statement which is false; yet it is by virtue of his making this statement that we regard him as the inaugurator of the modern movement in astronomy. It was false that the planets revolve in circular orbits, but it was true that they revolve about the sun; and this was the part of the statement which turned men's thoughts into a new channel. Now, while I do not believe that Comte will ever be regarded by posterity as the Kepler

or the Newton of modern philosophy, it is not at all unlikely that he will be pronounced its Copernicus. Though he was wrong in asserting that in the course of speculative evolution there are three radically distinct stages, and wrong also in assuming that the consciousness of Absolute Existence can ever be abolished; he was right in asserting that there has been a definite course of speculative evolution, of which deanthropomorphization is an essential feature, and which must end in the complete rejection of ontology. And this — though Professor Huxley has not remarked it — was the part of his statement which called attention to the fact that a new era in speculation was commencing. I cannot, therefore, unreservedly endorse Mr. Spencer's assertion [1] that Comte, while accepting the doctrine of the relativity of knowledge and kindred doctrines of modern scientific philosophy, nevertheless did nothing toward placing these doctrines upon a firmer ground than they had hitherto occupied. Comte indeed contributed nothing whatever to the psychological justification or elucidation of these doctrines; yet with his keen historic sense, he did much toward justifying them historically. To Hume's

[1] [See Spencer: "Reasons for Dissenting from the Philosophy of M. Comte," *Essays*, vol. ii. p. 123 (Library Edition, New York, 1891).]

partial demonstration of the relativity of knowledge, Comte added incalculable weight by showing that toward the assertion of that doctrine tended the enormous momentum of twenty-five centuries of speculative activity. It is true that he proved this point only by an empirical induction from the facts of history; and it is true that he only half understood and stated incorrectly the doctrine which he thus empirically confirmed. Nevertheless even this incomplete achievement was partly the symptom and partly the cause of a philosophic revolution, the character of which we shall more fully appreciate when we come in our final chapter to compare the critical attitude assumed by philosophy in our age with that which it assumed in the age of Rousseau and the *Encyclopédistes*. When we recollect how slow is the education of the human race, and how few are they who can serve efficiently as its teachers, we shall be inclined to admit the justice of the principle that great thinkers should be estimated rather according to what they have accomplished than according to what they have failed to accomplish. Historic criticism is at last beginning to learn this important lesson. And just as we freely admit that in those very speculations of Berkeley and Hume and Kant which we now reject, the point which riveted the attention of their authors was a valuable truth, though not

the truth which they supposed they saw; in like manner we must admit that in that theory of Comte's, which I have here adversely criticised, there was contained a fruitful germ of truth.

END OF VOLUME I.

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